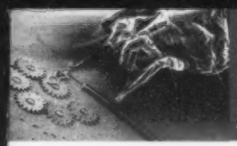

QUICKSTUDY: MEMS like the micromachines shown here beside a dust mite can do things that bigger machines can't. **PAGE 30**

PREMIER 100: IT execs such as ChoicePoint's Darryl Lemecha view crises as both challenges and opportunities for leadership. **PAGE 8**

COMPUTERWORLD

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MARCH 5, 2007 ■ VOL. 41 ■ NO. 10 ■ $5/COPY

VA Slow to Strengthen IT Security

Agency has made some gains but still faces data risks, federal auditors say

BY JAIKUMAR VIJAYAN

The U.S. Department of Veterans Affairs still hasn't adequately addressed many of the internal IT security shortcomings cited following the loss last May of a laptop with personal data on 26.5 million veterans and active-duty personnel, according to federal government and agency auditors.

As a result, sensitive data is still at risk of being accidentally or deliberately misused across the VA, the auditors warned last week at a congressional hearing on the agency's information and security management processes.

In response, VA Deputy Secretary Gordon Mansfield said the agency is working hard to implement a series of recommended changes and has made "substantial progress in a relatively short time frame." He acknowledged, though, that the VA has yet to achieve its overall goal of becoming a security role model for other federal agencies.

"We have done a lot of work and come a long way since last May's major incident occurred," Mansfield said. "But we still have an awful long way to go."

The hearing was held by the oversight and investigations subcommittee of the House Committee on Veterans' Affairs. Rep. Harry Mitchell (D-Ariz.), the subcommittee's chairman, said the panel originally planned to review the VA's information security efforts later this year. But the review was accelerated after the VA disclosed last month that a portable hard drive with information on up to 1.8 million veterans and doctors was reported missing from its medical center in

VA Security, page 16

INSIDE

Security analyst Shawn Carpenter talks about his wrongful termination suit against Sandia National Labs. Page 14

The Virtual Desktop

Gary Anthes reports. Page 22

Virtualization and streaming of desktop applications can centralize management, improve security and reduce costs – and it's pretty cool besides.

Oracle's Hyperion Deal Puts Users on Guard

Some fear loss of leverage, decline in service and longer upgrade cycles

BY HEATHER HAVENSTEIN

Oracle Corp.'s purchase of business intelligence vendor Hyperion Solutions Corp. will likely benefit Oracle, but Hyperion customers could experience a decline in service and end up with less negotiating leverage, some users and analysts said.

Oracle last week agreed to buy the BI tool maker for $3.3 billion in cash.

Bart Klein, vice president and manager of application development at UMB Financial Corp. in Kansas City, Mo., said Hyperion is the latest of the bank's best-of-breed vendors to be snapped up by Oracle.

The bank, he said, also uses Siebel Systems Inc.'s CRM software, Stellent Inc.'s content management tools and Versatility Inc.'s call center products, all of which have been acquired by Oracle in recent years.

"What is next?" Klein said. "While [it's] not our intention to put all of our technology investments in the hands of a

Hyperion, page 40

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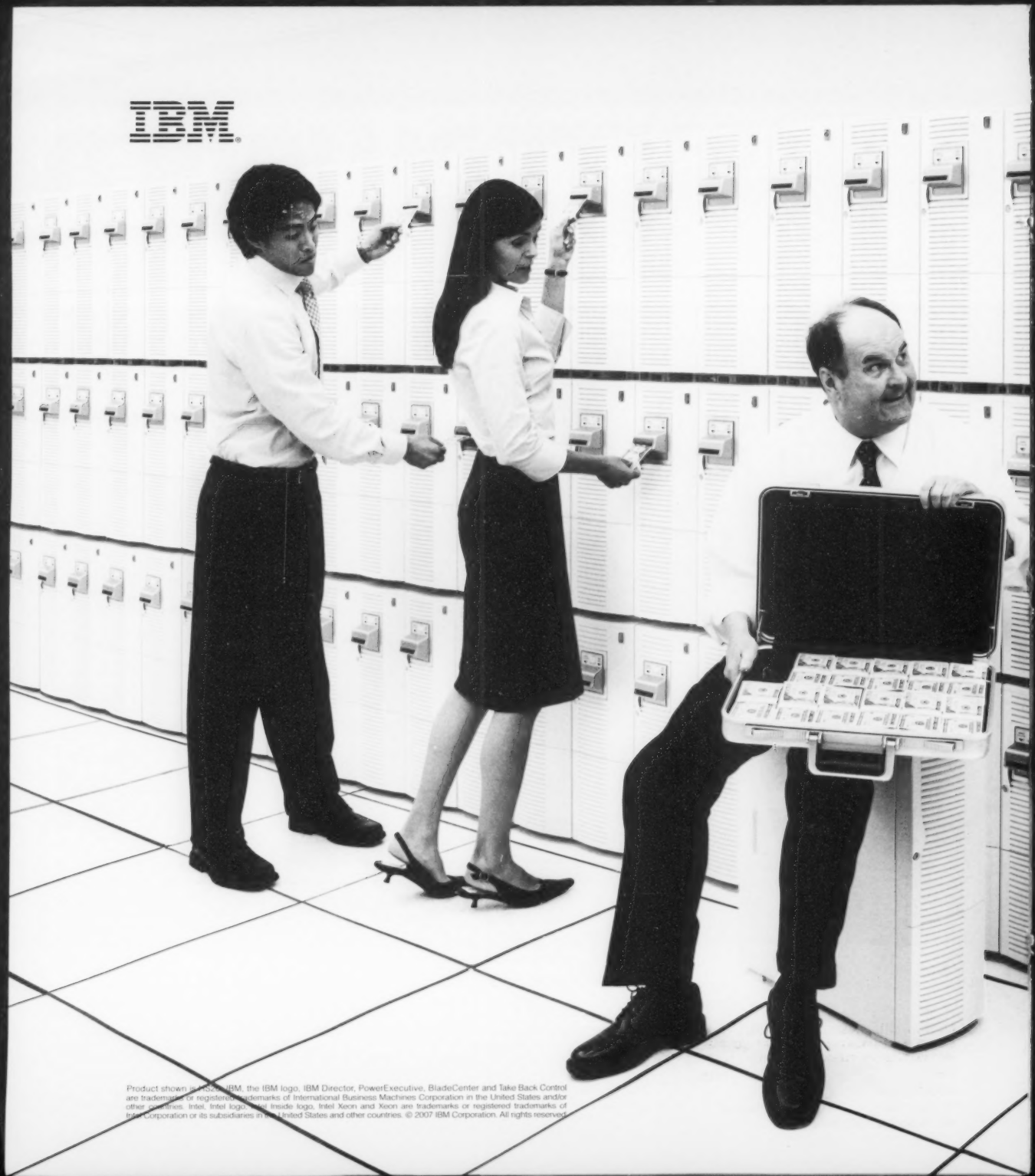

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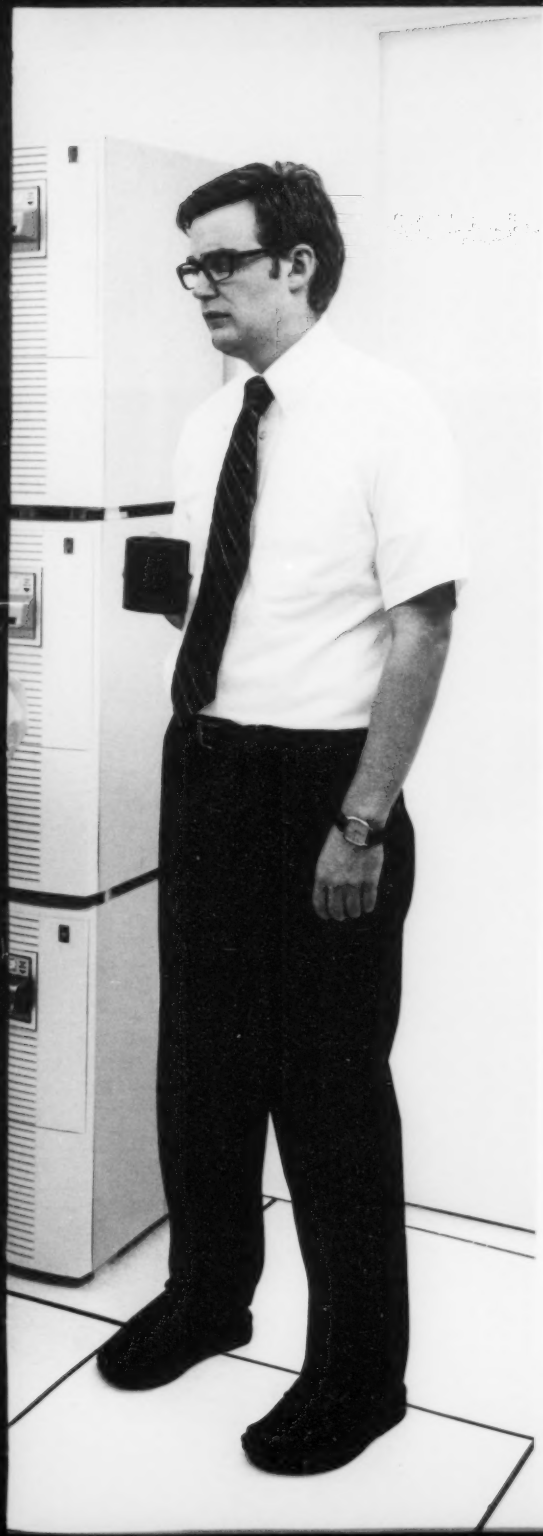


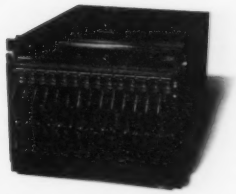
_INFRASTRUCTURE LOG

_DAY 51: The time and money it takes to manage these servers—not to mention the energy we're wasting—is out of control. We're literally pouring money into them: $50s, $100s—they even take euros.

_Whoever came up with "add an app, add a server" forgot to "add an ATM."

_DAY 53: I've taken back control with an IBM BladeCenter® with Dual-Core Intel® Xeon® processor technology. Its IBM Director gives us a single point of control, so we can centrally manage routine tasks, and IBM PowerExecutive™ calibrates cooling and system processing to optimize power usage. Helping save time and money.

_I am Ned. I am so money.



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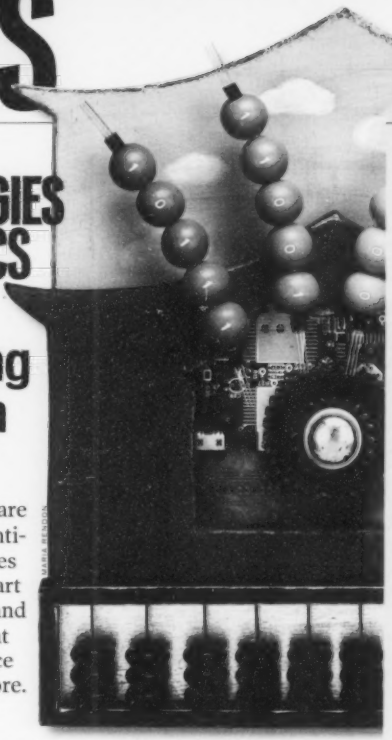

MARK BENDER

Banking On IT in China

Chinese banks are moving from antiquated processes to state-of-the-art technology — and it's happening at a scope and pace never seen before.
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22 The Virtual Desktop. The virtualization and streaming of desktop applications moves the management of desktops to the data center, where it can be done much more easily, more securely and often more cheaply.

28 Career Watch. CIOs look out for No. 1; the cost and value of an executive MBA degree; a comparison of premium pay for certified and noncertified skills; and how your job is affecting your face.

30 QuickStudy: MEMS. Just as an ant is able to carry something many times its own weight, MEMS — the mighty mites of microelectronics — take advantage of their wee size to accomplish things that bigger machines just can't do.

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The Top Five Technologies You Need to Know About in '07

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CAREERS: In a tight job market, the right mix of skills and industry expertise can translate into a long and fruitful IT career. Columnist Jim Lanzalotto discusses how the market is shaping up for 2007.
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Data-Storing Bacteria Could Last Thousands of Years

STORAGE: Scientists successfully store "E=mc² 1905" on the DNA of living matter.
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iPhone Happiness For Everyone?

MOBILE/WIRELESS: Columnist Jack Gold says that both Cisco and Apple will benefit from their recent deal.
www.computerworld.com/mobilewireless

Server Road Map: Beyond Quad-Core

SERVERS: Look for eight or even 16 cores by the end of the decade, analysts say.
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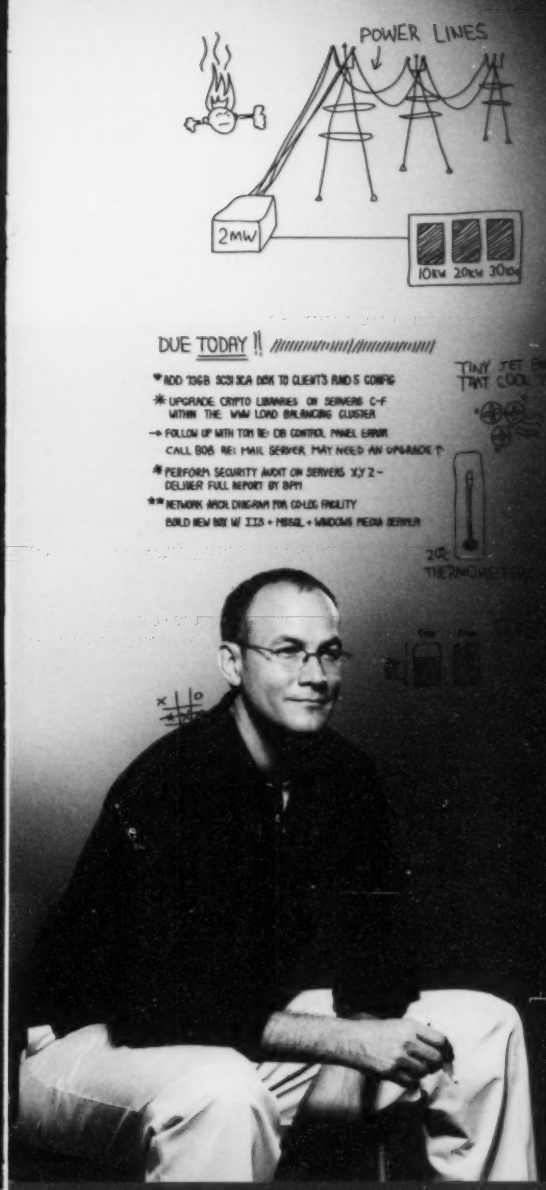
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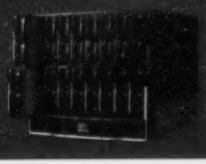

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AT DEADLINE

Lenovo Recalls Sanyo Notebook Batteries

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DELL BY THE NUMBERS

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Q4 '06	$15.2B	$1B

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IT Races Clock As Early Start of DST Approaches

Companies are still prepping their systems for Sunday's spring forward

BY TODD R. WEISS

WITH JUST days to go before this year's earlier-than-usual start of daylight-saving time, a last-minute scramble is on inside many IT departments to finish evaluating and updating systems in order to avoid any problems when the clocks are turned one hour ahead.

Although the changes to DST became federal law in August 2005, it has only been during the past few months — or weeks, even — that many companies have begun in earnest to prepare their systems for DST's new starting and ending dates. As a result, the situation remains unsettled, according to interviews with IT managers, consultants and analysts.

Forrester Research Inc. analyst Ray Wang said clients are jamming the consulting firm's phone lines asking for advice. The early time change is turning out to be "a bigger deal than vendors and customers had expected," Wang said.

DST, which previously began during the first weekend in April, will take effect at 2 a.m. on March 11 this year. And the changeover issue won't just go away after that. The status of systems will have to be revisited again when DST ends on Nov. 4, one week later than it previously did.

Rudy Ebisch, assistant director of the infrastructure group at a large maker of home and office products that he asked not be identified, said last week that his IT team is about 95% finished with a long list of system checks on the company's nine major software platforms. "Nothing has been a showstopper," he said.

But one area where DST problems are still being resolved, Ebisch said, is in a reservation system used to book meeting rooms. Reservations made before DST software patches were installed could conflict with ones made afterward, according to Ebisch. Reports are being run against the reservation system to try to find any conflicts so they can be manually corrected.

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Dave Brockman, a product manager at a hosted applications vendor in San Francisco, said his biggest DST problem has been the lack of a free fix from Microsoft Corp. for systems that are still running Windows 2000 or Windows 2000 Server. Brockman's company, which he asked not be named, still uses those versions of Windows on an unspecified number of machines

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that can't be upgraded to newer operating systems because of application support issues.

Brockman said he's annoyed because Microsoft is still issuing free security updates and patches for Windows 2000 but is classifying the DST update as a hot fix that's available only as part of a fee-based extended support program. In contrast, the software vendor is offering free DST patches for Windows XP and Windows Server 2003, and it built code for dealing with the DST changes into Windows Vista.

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Consulting Firms Face Flurry of DST Help Requests

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Once BearingPoint officials realized that they wouldn't be able to do all the required patching work in time, they began prioritizing the fixes and told clients that they would help them complete the rest of the updates after March 11, Courbe said.

Since many users have unauthorized applications on their PCs, patching efforts have been complicated by unexpected software interdependencies and incompatibilities, according to Courbe. Fixing such problems has taken "much more time than anticipated," he said.

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"It's complete chaos," Simmons said. "Everyone's still sort of picking it up. We've been telling our customers about this for a while now, and it's only been about a week where they've been coming to us and saying, 'We want to get this done.' "

Simmons, who was attending a Cisco Systems Inc. technology conference in San Jose along with representatives from about 25 other IT services firms, said the cell phones of attendees were ringing madly, with many callers seeking help on the DST conversion. He pinned most of the blame for the last-minute rush on IT vendors, saying that many have only recently begun releasing DST patches.

"Everyone's been really late to the game," Simmons said. "It should have been better planned. This was known over a year ago, and it's taken forever to get patches."

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IT Executives Rise To the Challenge

Crises and other difficult moments present leadership opportunities

BY TODD R. WEISS

DARRYL LEMECHA'S career-defining moment as an IT executive began on the day in February 2005 when his company, ChoicePoint Inc., had to notify 145,000 consumers that some of their personal information might have been obtained by identity thieves posing as operators of legitimate businesses.

After the discovery that the Alpharetta, Ga.-based data aggregator had erroneously sold credit and other identifying information to the thieves, internal security and privacy processes were turned upside down, said Lemecha, CIO and senior vice president of shared services.

Since then, ChoicePoint has changed how it stores and handles personal information and has strengthened its credentialing procedures for individuals and businesses that want to use the data, Lemecha said last week via e-mail. He himself has spent significant amounts of time explaining to customers and business partners what happened and what ChoicePoint has done to make sure it never occurs again.

"This experience has been tremendous for me," Lemecha wrote. "While I would not wish the last 24 months on any CIO, it has been life-changing. It caused me to push myself and my teams to levels I didn't think were possible."

Lemecha is among the executives whose accomplishments will be recognized at *Computerworld*'s eighth annual Premier 100 IT Leaders Conference in Palm Desert, Calif., this week. He is also scheduled to take part in a panel discussion on defining moments in IT leadership. For Lemecha and other Premier 100 honorees, such moments, though challenging, are often what successful IT management careers are built upon.

COMPUTERWORLD PREMIER 100 IT LEADERS CONFERENCE

John Fisher, formerly CIO at SmithBucklin Corp. in Chicago, said his defining moment occurred when he and the company's CEO agreed to change the IT department from an operation that solely took orders into one that was expected to help drive revenue.

"The IT function became a revenue-producing organization, just like the other business areas," Fisher said. "One interesting impact was the way in which the IT staff members viewed their job. Rather than thinking of their job as responding to problems and being a cost center, they took great pride in finding innovative ways to make money."

Tough Decisions

Ironically, that change in attitude created a new challenge for Fisher, a 2006 Premier 100 honoree who is now executive vice president of strategic services at NET(net) Inc., a Holland, Mich.-based firm that negotiates software contracts for companies.

Fisher said he had to explain to the IT managers who worked for him at SmithBucklin "that sometimes their services needed to be 'loss leaders' for the greater good of the organization," in order to seal deals with customers. "They thought this devalued their services," he noted.

David Wright, CIO at women's footwear wholesaler Cels Enterprises Inc. in Los Angeles, said his career path took a sharp turn six years ago, when he was working as a consultant and project manager at an ERP vendor that he asked not be identified. Wright was sent to help Cels resolve a troubled ERP implementation.

The problems, combined with poor support from the software vendor's local office, were causing invoices and other documents to be generated incorrectly, Wright said. Because of the widespread errors, he added, Cels was being "inundated" with chargebacks from retailers that added up to millions of dollars.

Cels refused to pay the ERP vendor for Wright's services until the new system was working properly. Wright said the vendor threatened to pull him off the job until Cels paid up — "something I made clear they could not possibly do until we fixed the major issues and restored their revenue stream."

He said he decided to resign "on the grounds that I don't believe the way to build a business is by directly harming your customers."

> "While I would not wish the last 24 months on any CIO, it has been life-changing."
>
> DARRYL LEMECHA, CIO, CHOICEPOINT INC.

Shortly thereafter, Wright met with senior managers at Cels and guaranteed that he could fix the ERP system within six months. "It took some convincing," he noted. But Wright was named CIO, and the ERP system was "effectively stabilized" within the promised six months, he said.

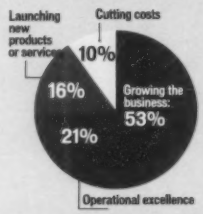
"In the six years I've been CIO here, I've seen a complete turnaround," Wright said. "We went from a company that was being crippled by a failed ERP implementation to one that is contemplating an IPO."

THE IT MIND-SET

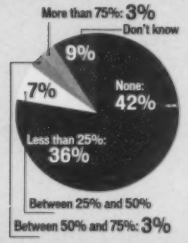
In January and February, *Computerworld* surveyed Premier 100 honorees and other IT and business managers who registered to attend this week's Premier 100 IT Leaders Conference. A total of 139 responses were received via the Internet. Here's a sampling of the survey's findings.

PLANS AND PRIORITIES

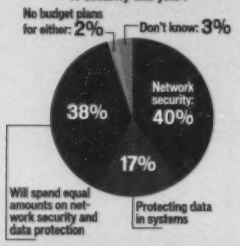
What is your CEO's top priority?



What percentage of your PCs do you plan to migrate to Windows Vista this year?

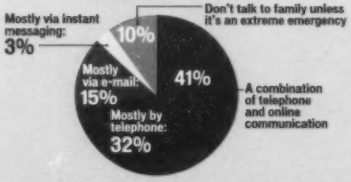


What will you spend more money on in IT security this year?

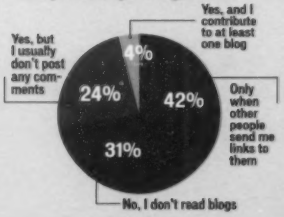

No budget plans for either: 2%
Don't know: 3%
Network security: 40%
38%
17%
Will spend equal amounts on network security and data protection
Protecting data in systems

HIGH-TECH LIFESTYLE ISSUES

How do you typically communicate with your family during the workday?


Mostly via instant messaging: 3%
Don't talk to family unless it's an extreme emergency: 10%
Mostly via e-mail: 15%
41%
A combination of telephone and online communication
Mostly by telephone: 32%

Do you read blogs on a regular basis?


Yes, and I contribute to at least one blog: 4%
Yes, but I usually don't post any comments: 24%
42%
Only when other people send me links to them
31%
No, I don't read blogs

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☐ Cables/Wires ☐ Mobile Protection ☐ Surge Protection ☐ UPS Upgrade ☐ Don't know

Purchase timeframe? ☐ <1 Month ☐ 1-3 Months ☐ 3-12 Months ☐ 1 Yr. Plus

You are (check 1): ☐ Home/Home Office ☐ Business (<1000 employees) ☐ Large Corp. (>1000 employees)
☐ Gov't, Education, Public Org. ☐ APC Sellers & Partners

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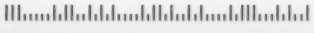

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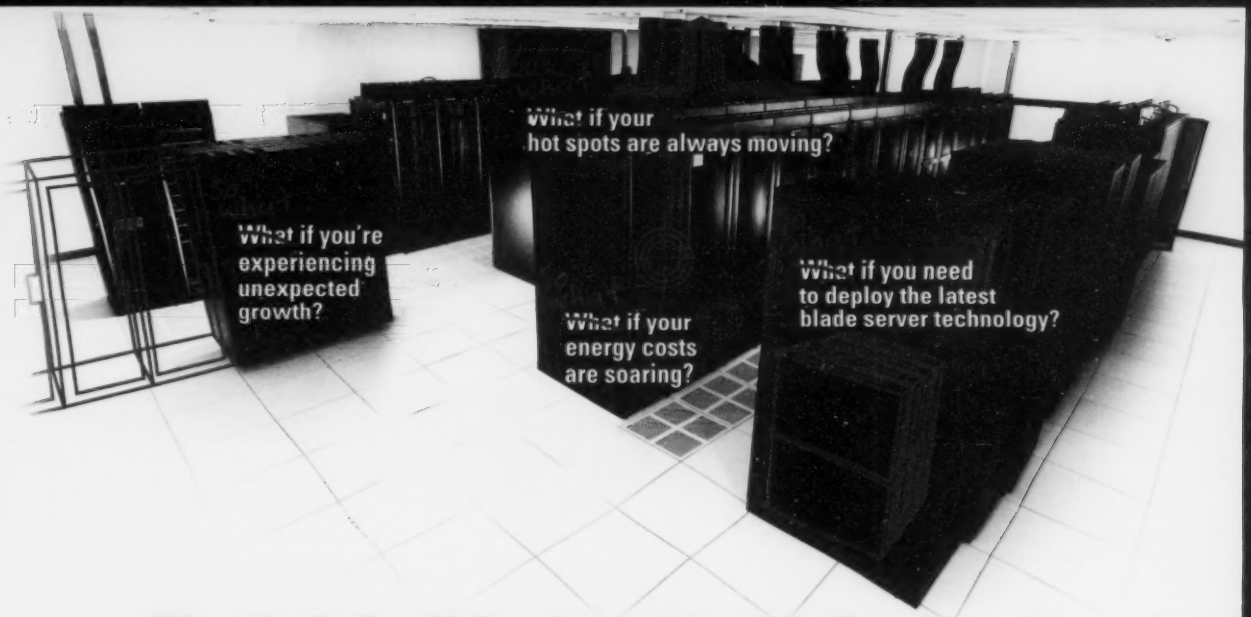

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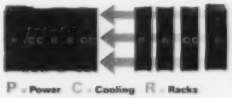

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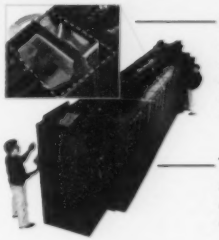

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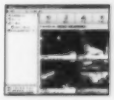

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BRIEFS

Bug Found in Vista Antipiracy System

A bug in the built-in antipiracy technology in Windows Vista is telling some users that they must reactivate the operating system after they install new device drivers or run newly installed applications. Microsoft Corp. has issued a patch designed to fix the flaw, which was found in its Software Protection Platform technology. SPP is an updated and more aggressive version of the Windows Genuine Advantage antipiracy tools that are in Windows XP.

Corel Releases WordPerfect Beta

Corel Corp. has released a free public beta of WordPerfect Lightning, an updated version of its word processor that blends a desktop-based application with online collaboration and storage features. According to Corel, the application requires 20MB and can run on Microsoft Windows XP and Vista.

Outsourcer Raises $24M in Capital

Achievo Corp., a San Ramon, Calif.-based outsourcing services provider, has raised $24 million in capital from private and institutional investors. The company, which runs much of its operations from facilities in China, said that it will use the funds "to cover current obligations and future operating needs."

HP to Buy NAS Software Maker

Hewlett-Packard Co. has agreed to acquire a storage software company that it said will boost its position in the enterprise-class, network-attached storage business. HP said that it has signed a definitive agreement to acquire PolyServe Inc. for an undisclosed sum. Beaverton, Ore.-based PolyServe employs 117 people. Its NAS software can run on HP storage arrays and ProLiant servers running Linux or Windows.

ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY BUZZ BY MARK HALL

MATTHEW FAULKNER

Language Limits Open Source's . . .

. . . appeal compared with proprietary software. When Microsoft Corp. touted Vista in its worldwide release this year, it did so in 20 languages, says Mark Lancaster, CEO of SDL International PLC, the Maidenhead, England, company that helped translate the operating system's content. SDL also renders about 10 million words per month into dozens of languages for Hewlett-Packard Co. Open-source projects, on the other hand, are almost exclusively developed, described and distributed globally in English. "Does that put [open source] at a disadvantage against big technology companies? Yes," says Lancaster. Open-source projects that target consumers have an uphill battle against tech giants with big translation budgets, agrees Todd Williams, vice president of technology at Genuitec LLC. Flower Mound, Texas-based Genuitec is the creator of the open-source MyEclipse Enterprise Workbench for application developers. "People want things in their own language," he acknowledges. However, Williams classifies most programmers the world over as a "subculture" that's "English-tolerant" and contends that "when they're programming, they're thinking in English." Williams does admit that's not universal, saying that in Japan, software needs to be localized. Lancaster argues that localization is essential for open-source tools to move beyond the niches of programmers and academia in non-English-speaking countries. But Williams points out that the Eclipse framework is a notable open-source exception. It has been localized into 30 languages.

LANCASTER: Mostly-English open source is at a disadvantage in the global market.

Cashless vending machines . . .

. . . are an unstoppable trend. You won't need to root around in your pockets for coins to buy a soda much longer, says Stephen Herbert, president of USA Technologies Inc. in Malvern, Pa. His company's e-Port system is being used to retrofit thousands of cash-only units to handle a variety of cashless payment options, such as near-field communication phones, RFID devices and, of course, credit cards. "It's the last major all-cash market," he says. He predicts that hotels will want cashless machines because they're less vulnerable to vandalism. And credit card companies want them because they represent a new market. The technology also opens up opportunities in markets such as manufacturing, says Herbert, noting that spare parts could be stored in vending machines next to assembly lines, so workers could avoid schlepping to the inventory department.

The Storewiz STN-6000 compression appliance cuts data storage needs up to five times.

Get more storage capacity without . . .

. . . investing in more storage capacity. A new appliance available today from Storewiz Inc. in San Jose promises up to fivefold compression of data written to disks. According to Tzahi Shahak, director of product management, the Storewiz STN-6000 sits between PCs and servers and compresses and uncompresses files in real time and requires no client or server code. He says the device is smart enough to compress only data and not things such as file attributes and permissions. And when an end user looks at file descriptions on a server, he sees details of the uncompressed version, so he won't panic when he finds that his PowerPoint magnum opus has been radically reduced in size. Orli Amir, Storewiz's vice president of marketing, notes that the STN-6000 also reduces power consumption and cuts your data center space requirements because it enables you to meet data storage demands with fewer disk arrays than you once might have needed. Storewiz also offers a utility called Reverse that can uncompress files on the server in case something catastrophic occurs. Pricing starts at $22,000.

Learn why consumers do what they do . . .

. . . on your Web site. A new analytic tool available this week from TeaLeaf Technology Inc. in San Francisco may give you insight into why potential customers drop out in the middle of transactions. According to John Dawes, vice president of product management, cxView "finds hidden obstacles" on your Web site that prevent visitors from completing a purchase or process. "We give you the customer experience for each session," he claims. Dawes says that with cxView, e-commerce managers can correlate changes in online business, such as shifting trends in product orders, with technical problems or business process issues. For example, the software can show you in dollars what you're losing because of performance problems, application errors or options customers must navigate before making a purchase. TeaLeaf is also upgrading its CX data store software, which cxView needs to run. TeaLeaf CX Version 6 runs inside a browser, no longer requiring Windows client software. Pricing is application-specific but can start as low as $50,000. ▸

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Estimated e-commerce losses resulting from problems consumers detect on Web sites, per TeaLeaf.

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* IDC, Worldwide Hardware Authentication and Identity and Access Management 2005 Vendor Shares, Doc #203296, Sep 2006.

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BRIEFS

Microsoft to Buy Health Info Engine

Microsoft Corp. has agreed to acquire Medstory Inc., which operates a search engine for health information. Terms of the deal were not disclosed. Microsoft said the acquired firm will anchor a "broader consumer health strategy" for the company. Medstory will become part of the recently created health solutions group at Microsoft.

Ingres Unveils Icebreaker Database

Ingres Corp. has released the Icebreaker database, a combination of the Ingres 2006 database and the rPath implementation of Linux. Icebreaker is the first new product from Ingres since it was spun off from CA Inc. in 2005. The software includes only the components of rPath that are needed to run the database, easing installation and potentially reducing maintenance costs.

Kaiser Foundation Names New CIO

Kaiser Foundation Health Plan Inc. and Kaiser Foundation Hospitals have appointed Philip Fasano CIO. Fasano replaces interim CIO Bruce Turksta, who took over the post after the resignation of CIO Cliff Dodd in November. Dodd left days after a Kaiser Permanente employee sent a companywide memo that warned of repercussions related to the rollout of a $4 billion electronic health records management system from Epic Systems Corp.

HP Unveils Midsize Storage Systems

Hewlett-Packard Co. has brought out a disk-based backup and recovery system designed for small and midsize businesses. The HP StorageWorks D2D Backup System can automatically save data from as many as four servers and has a total capacity of 750GB or 1.5TB, depending on the model. The D2D110 and D2D120 models are priced at $1,999 and $2,999, respectively.

Quiet Techies Can Be Groomed to Be Leaders

Experts debate what traits make for a good CIO

BY THOMAS HOFFMAN
RYE BROOK, N.Y.

NOT ALL leadership qualities are ingrained at birth. You can learn some of them. But it helps if you want to lead and are willing to listen.

What it takes to run an IT group was the topic of a lively discussion here last month at a meeting of a chapter of the Society for Information Management (SIM).

Panelist and management consultant Bart Bolton said he isn't convinced that a person needs charisma to be an effective IT leader. He believes introverted technologists with the right qualities can be groomed to lead. "I know a lot of introverts who have become successful CIOs," said Bolton.

A Mix of Attributes

Potential IT leaders "have to develop a sense of who you are and what you're about," and that leads to a sense of self-confidence, he said.

Effective IT leaders draw upon other qualities as well, including the ability to set and communicate a vision for the IT organization, a capacity to market and sell that vision to IT staffers and business executives, "and the charisma to motivate," said Tom Pettibone, co-founder and managing partner at Transition Partners Co., a management consultancy in Reston, Va., and a former CIO at Philip Morris USA Inc. and New York Life Insurance Co.

Those types of leadership qualities, said Pettibone, are "something that's in the internal DNA" of a person.

A good leader, Pettibone added, inspires people, demonstrates success, shows the way and advances the careers of those who work for him.

Still, Pettibone warned that it's not always a good idea to try to groom someone who might be a skilled manager or technologist but doesn't necessarily want to become a leader. "To try to get them to [lead] is like a root canal," he said.

The SIM panel also debated whether it's best to tap the IT ranks for a CIO or bring in a business executive for the job.

The latter approach can be risky, said Ron Rose, CIO at Priceline.com Inc. in Norwalk, Conn. "For a lot of companies, the technology has to deliver and deliver quickly," he said.

Time-to-market pressures have made the margin for technology-related errors smaller, and business-people-turned-CIOs "will have to become more technology savvy" to keep pace, Rose said.

Bolton added that either approach can produce challenges for a company. If an IT veteran is tapped to become a CIO, he has to be able to talk to business executives in business terms, said Bolton. Also, business people who transition into CIOs run the risk of not fully understanding technical issues.

For his part, Pettibone believes that the ideal CIO candidate comes from the IT ranks. "I used to joke with the general counsel at New York Life that if they wanted to make him the CIO, they should make me the general counsel," said Pettibone.

Regardless of a CIO's roots, Rose said, he "has to almost be a better business person than the business people because you have so much less time to figure out the challenges for each of those business silos."

Rose also emphasized the importance of listening. Ten years ago, when Rose was chief technology officer at Standard & Poor's Retail Markets, an engineer told him about a discovery he had made with a then little-known operating system called Linux. "He said, 'You've got to check this thing out; it's amazing,' and I'm thinking, 'Like I have time for this,' " said Rose.

But check it out he did — and S&P became one of the first financial services firms to adopt the open-source system. "It reflects how some of the best ideas come from the bottom up," said Rose.

SIM Targets Shrinking IT Workforce in U.S.

Program aims to get high school students interested in IT careers

BY THOMAS HOFFMAN

With a national IT labor shortage likely to emerge over the next decade, the Society for Information Management is extending its IT career programs to high school students.

NOBLE: IT needs new blood and innovative ideas.

Several demographic studies indicate that labor shortages are possible. For example, AMR Research Inc. found that 76 million Americans will reach retirement age during the next 10 years. And SIM predicts that enrollment in college IT courses is dropping by 40% annually.

Meanwhile, the U.S. Department of Commerce's Office of Technology estimates that about 2.5 million IT jobs will have been created in the U.S. between 2000 and 2010. The AEA estimates that the number of IT workers stood at 5.6 million at the end of 2005.

To help address the anticipated IT labor shortfall, SIM plans this year to expand its college IT career programs to high school students.

The organization intends to reach out to high school students and guidance counselors by drawing upon a program created by its Dallas chapter, said Leo Collins, SIM's vice president of advocacy and communities of interest.

"By the time [students enter college], it's a little late to bring this issue to bear," added SIM President James Noble. "We have to catch people's decision-making process a little earlier."

The Chicago-based professional group for IT executives teamed up with Microsoft Corp. 18 months ago to launch a program called Future Potential in IT, said Collins, who is also CIO at Lions Gate Entertainment Corp. in Santa Monica, Calif.

Since then, local CIOs and Microsoft executives have made numerous presentations about IT career opportunities to groups of 200 to 400 students at several U.S. colleges and universities, Collins said.

The presentations are targeted at both technical and nontechnical majors.

"We're appealing to people who will be future IT leaders," including students who are developing business experience and soft skills, said Noble, who is also group vice president and CIO at Altria Group Inc. in New York.

Some labor experts believe that the dire warnings of a mass baby boomer exodus are exaggerated, because some older workers are expected to work after age 65.

But people who keep working beyond retirement age won't fully address the emerging labor gaps, said Noble. "As in any profession, you're relying on refreshing the profession with new blood, people with innovative ideas and training in new technologies," he said.

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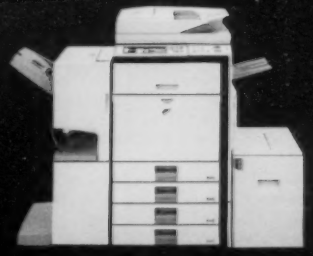

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'Back-hacker' Says Sandia Tried To Keep Probe of Breach Quiet

BY JAIKUMAR VIJAYAN

Last month, a jury in New Mexico awarded **Shawn Carpenter** *$4.3 million as part of a wrongful termination lawsuit against Sandia National Laboratories, where he had worked as a network intrusion-detection analyst. Carpenter was fired in early 2005 after he shared information about a network compromise with the FBI and the U.S. Army. Sandia, which is run by a subsidiary of Lockheed Martin Corp. under a contract with the U.S. Department of Energy, claimed that Carpenter had inappropriately disclosed confidential information. But Carpenter said he did so for national security reasons after using reverse-hacking techniques to find evidence that the perpetrators of the May 2004 breach at Sandia belonged to a Chinese hacking group called Titan Rain.*

Carpenter worked at the U.S. Department of State's Cyber Threat Analysis Division until Feb. 23, when he left to take a job as a principal research analyst at NetWitness Corp., a network security start-up in Herndon, Va. He discussed the incident at Sandia in an interview with Computerworld *that was conducted via e-mail last month. Excerpts follow:*

What's your reaction to the jury's verdict in your lawsuit? It's almost a guarantee that Sandia will appeal and drag it out for years. They don't have any incentive to resolve the case, as the taxpayers are footing the bill. We've indicated our willingness to negotiate over the course of the suit, but they expressed no desire to talk. The one offer they made at a settlement conference ordered by the court was so pathetic that it wouldn't have even covered a few months of my legal expenses.

What prompted you to conduct an independent investigation into the intrusion at Sandia in the first place? As a network intrusion-detection analyst, I regularly used similar "back-hacking" techniques to recover stolen Sandia password files and retrieve evidence to assist in system and network compromise investigations. We were able to better defend our networks as a direct result of the intelligence we gained. I authored in-depth analyses of these intrusions.

But what were you hoping to accomplish through this investigation? My objective started out with a purpose similar to the other investigations I engaged in while at Sandia. The difference in this instance was that the rabbit hole went much deeper than I imagined.

In late May of 2004, one of my investigations turned up a large cache of stolen sensitive documents hidden on a server in South Korea. In addition to U.S. military information, there were hundreds of pages of detailed schematics and project information marked "Lockheed Martin Proprietary Information – Export Controlled" that were associated with the Mars Reconnaissance Orbiter. Ironically, Sandia Corp., the private company that manages Sandia National Laboratories, is a subsidiary of Lockheed Martin.

It was this discovery that prompted my meeting with [my supervisor], when I was told that "it was not my concern." Later, I turned [the information] over to the U.S. Army and the FBI and helped investigate how it was taken and where the path led.

You've claimed that you weren't given an opportunity by Sandia to get the information you uncovered to the proper authorities at the other organizations. Why was that? I attempted several times to find a Sandia channel to get the information to the organizations that were impacted. At the first meeting with my supervisor and the Sandia information security manager, [the supervisor] stated, "We don't care about any of this. We only care about Sandia computers."

After I insisted that there must be a way to throw the information "over the fence" to Sandia's counterintelligence organization or other federal and military authorities, he said that I was forbidden from doing this and that it "wasn't my job."

Why do you think Sandia acted the way it did? This was the first time that my activities uncovered evidence that entities outside Sandia were compromised and [that] data was being stolen. They weren't willing to contact the proper authorities because outside law enforcement would certainly inquire about how the data was obtained — bringing unwelcome scrutiny upon Sandia. It was a case of putting the interests of the corporation over those of the country. ▸

Editor's Note

In response to a request from *Computerworld* for comments on the jury's ruling in the lawsuit filed by Shawn Carpenter, and on the claims Carpenter made in our interview with him, officials at Sandia National Laboratories sent the following statement via e-mail: "Sandia is disappointed by the verdict and is evaluating a potential appeal. Discussing anything more publicly is premature."

Blind Workers File Suit Against Oracle, Texas

Say inaccessibility of apps violates law

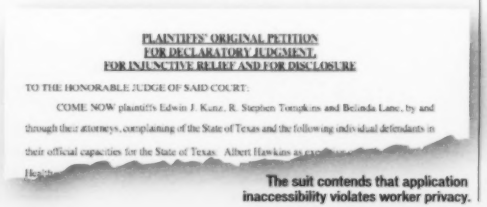
BY MARC L. SONGINI

The National Federation of the Blind and three state employees have filed a lawsuit against Oracle Corp. and the state of Texas seeking to ensure that all applications used by the state government are accessible to blind state workers.

The suit, filed last month in Travis County District Court in Austin, contends that the workers' inability to access the applications is preventing them from adequately doing their jobs. It specifically cited the human resources applications in the Oracle PeopleSoft software used by the Texas Health and Human Services Commission (HHSC) and the Texas Workforce Commission.

The lawsuit seeks to force Oracle to make its software accessible and to force the state to stop purchasing any inaccessible software.

Defendants in the suit include the directors of the state agencies; the state's acting chief technology officer, Brian Rawson; and Oracle.



PLAINTIFFS' ORIGINAL PETITION
FOR DECLARATORY JUDGMENT,
FOR INJUNCTIVE RELIEF AND FOR DISCLOSURE

TO THE HONORABLE JUDGE OF SAID COURT:

COME NOW plaintiffs Edwin J. Kunz, R. Stephen Tompkins and Belinda Lane, by and through their attorneys, complaining of the State of Texas and the following individual defendants in their official capacities for the State of Texas: Albert Hawkins as

The suit contends that application inaccessibility violates worker privacy.

One of the plaintiffs, Edwin Kunz, the director of a rehabilitation center for the blind within the HHSC's Department of Assistive and Rehabilitative Services, contended that the lack of access to the human resources applications regularly causes privacy problems for employees.

"Because I must have sighted assistance for all of these personnel functions, both my privacy and the privacy of my employees are routinely violated," he said in a statement.

"I've complained about the problems with the software, but nothing has been done to fix them," Kunz said.

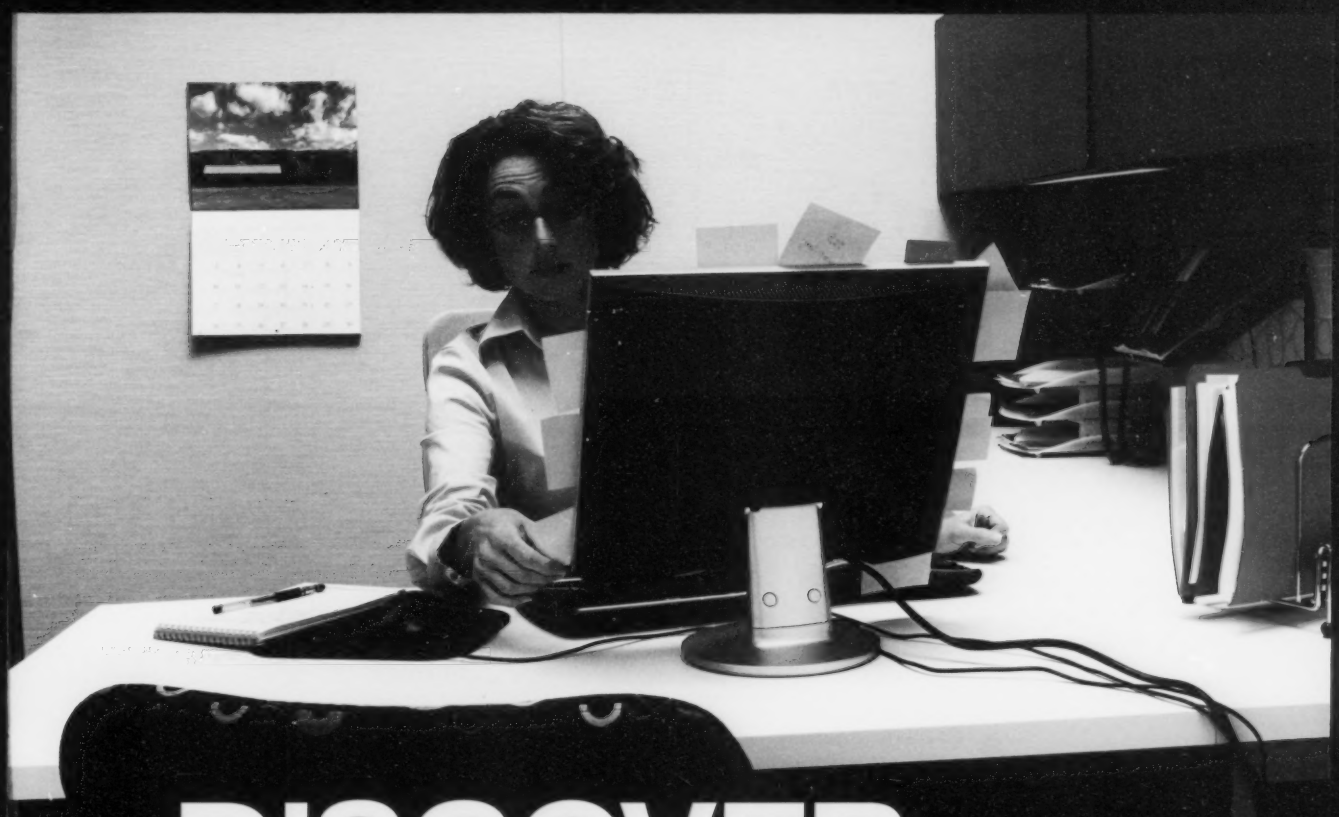
Tommy Craig, president of the Texas chapter of the National Federation of the Blind, said that Texas law requires that "all software and computer systems purchased by the state be accessible to blind employees."

He noted that blind supervisors can't access the records of people who report to them and that blind employees can't access their own records without assistance, which raises privacy and confidentiality issues.

Craig suggested that various remedies are available to make the applications accessible. For example, a Braille-enabled device could be attached to a PC's serial port, or applications could be voice-enabled, he said. "It doesn't take a lot to do it," Craig said.

Renee Mauzy, the general counsel for the Texas Department of Information Resources (DIR), said the state plans to deliver an initial response to the lawsuit today. She said the DIR, the state's IT operation, is already working with Oracle and the Texas commissions to fix the problems.

Both the HHSC and the Workforce Commission declined to comment on the suit, citing pending litigation. An Oracle spokeswoman also declined to comment. ▸



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Feds Hope to Boost Businesses' Role in Slowing Cyberattacks

Private sector seeks earlier warnings, more intelligence on potential strikes

BY PATRICK THIBODEAU
WASHINGTON

As reports of cybersecurity incidents grow, U.S. Department of Homeland Security officials hope a new initiative will improve their ability to work on the problem face to face with private-sector experts.

The DHS plans to collocate private-sector employees from the communications and IT industries with government workers at the U.S. Computer Emergency Readiness Team (US-CERT) facility here, said Gregory Garcia, assistant secretary of cybersecurity and telecommunications at the DHS. The teams will work jointly on improving US-CERT's information hub for cybersecurity, Garcia said. The agency didn't specify a starting date for the program but said it will begin soon.

US-CERT is a four-year-old DHS-run effort involving the public and private sectors to protect the nation's Internet infrastructure.

"It's through this collocation that we are going to build a strong trust relationship, an information-sharing relationship," said Garcia.

Such collaborative programs will improve the monitoring of suspicious Internet activity "so we will be able to better analyze [in] real time what is happening and take steps to mitigate it and have a synchronized and instantaneous response capability," he said.

Garcia outlined the efforts to improve cooperation between the public and private sectors at the Armed Forces Communications and Electronics Association's Homeland Security Conference held here last week.

Garcia and other speakers at the conference said that the need to improve such cooperation, as well as the imperative to improve IT security overall, is becoming more urgent daily. "What we are seeing among our adversaries is increasing sophistication in terms of their capabilities, in terms of the threats that they impose upon our networks," Garcia said.

In all of 2006, 23,000 incidents — 75% of them in the private sector — were reported to US-CERT. According to the DHS, an incident is defined as an attempt to gain unauthorized access into a system, a denial of service or any other kind of Internet disruption.

Nineteen thousand incidents were reported in the first quarter of the federal fiscal year, which began Oct. 1, said Jerry Dixon, who heads the DHS's National Cyber Security Division.

The number of incidents is growing, Dixon said, but many firms and government entities still aren't prepared to deal with threats because they don't know what they have in their computing environments.

"How can you manage risk if you don't have a good handle on what your environment looks like?" asked Dixon, who noted that he has made on-site visits to large private companies as well as to state and federal agencies.

Security Gaps

Karl Brondell, a strategic consultant at State Farm Insurance, noted that industry and government "really aren't prepared today to address that significant attack that will come to us, potentially, through cyber."

He cited a Business Roundtable report that identified gaps in private-sector cybersecurity. The Washington-based Business Roundtable is an association of CEOs from large companies.

Although Brondell said that efforts to improve cybersecurity have been somewhat successful, he noted that the U.S. "lacks an adequate and truly comprehensive system of early warning of impending attacks."

Brondell said that private-sector businesses could improve security with better access to "chatter" heard by government security agencies about potential attacks.

As US-CERT gains visibility and effectiveness, officials hope to expand its membership to more business sectors, Garcia said.

"We will then have a truly national capability across critical infrastructures, sharing information and responding to incidents as they are happening," he said. "That is one of the key priorities."

Continued from page 1

VA Security

Birmingham, Ala., on Jan. 22.

Gregory Wilshusen, director of information security issues at the U.S. Government Accountability Office, said at the hearing that the VA has taken several "important steps" to improve its IT security practices. That includes an ongoing centralization of security functions and personnel under the CIO's office and the establishment of "a data security corrective plan" to serve as a guideline for some of the security improvements, he said.

But many of those changes have yet to be fully implemented, Wilshusen added. For example, policies for assessing risks and implementing enterprise patch management capabilities haven't been developed. Nor does the VA have a plan for proactively mitigating known vulnerabilities across all of its systems, he said.

In addition, of the 24 agencies covered under the Federal Information Security Management Act, the VA is the only one that didn't submit a report for 2006 on its compliance with FISMA to the White House Office of Management and Budget, Wilshusen said.

> **"I believe the vast majority of VA employees are now more aware [and] more sensitive about data management and security."**
>
> **GORDON MANSFIELD,** VA DEPUTY SECRETARY

> **"There is a greater awareness regarding the issue. However, [the] VA still lacks effective internal controls and accountability, which leaves sensitive information at risk."**
>
> **MAUREEN REGAN,** COUNSELOR TO THE VA'S INSPECTOR GENERAL

Need for Accountability

Maureen Regan, counselor to the VA's inspector general, said at the hearing that there now is a greater awareness of the need for change within the agency. But there is still a lack of effective internal controls and accountability, she added.

An ongoing audit of the VA's FISMA compliance has shown that none of the 17 security recommendations made in previous reports has been implemented thus far, Regan said. She also said that the inspector general's office expects to cite "several new high-risk areas," including remote access and the ability of nonemployees to gain access to sensitive data.

Although 10 months have elapsed since the laptop was stolen from the home of a VA employee, the agency has yet to determine how many of its employees and contractors are using personally owned systems to access VA networks and data, said Regan.

The agency also doesn't have any way of knowing what data is being downloaded and stored on such devices, she said. In addition, much of the agency's sensitive data remains unencrypted, as do many e-mail transmissions.

Mansfield pointed to the ongoing centralization of the VA's IT organization and the establishment of a security operations center as examples of the changes the agency is making. He also noted that at an off-site meeting of senior managers on Feb. 21, VA Secretary R. James Nicholson reiterated his order that all supervisors take responsibility for protecting information.

But progress at the VA has been slow because of the enormous scope of the work involved, Mansfield said. "We still have out there a largely decentralized system," he said. "It is nonstandardized. So there are no simple fixes."

Robert Howard, the VA's assistant secretary for information and technology, said the agency is on track to complete the centralization of all IT operations by July 2008. All software development programs will be shifted to the central IT unit by the start of next month, according to Howard.

Meanwhile, the search is on again to find a chief information security officer, a position that has been vacant since the VA's former CISO resigned last June. Mansfield said the hiring process has been delayed because a candidate who had been chosen for the job decided to accept another offer at the last minute.

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GLOBAL DISPATCHES

An International IT News Digest

EC Threatens Germany With Action Over Law

BRUSSELS

THE EUROPEAN Commission last week threatened the German government with legal action unless it scraps a new law that protects Deutsche Telekom AG from competition in the broadband Internet access market.

The commission sent a letter of formal notice to the German government after issuing repeated warnings not to adopt the legislation. The letter gives Germany 15 days to reply before the case is sent to the European Court of Justice in Luxembourg.

"I regret that Germany has chosen to ignore the commission's concerns about this new telecom law despite several clear warnings from the commission," said Viviane Reding, European Union commissioner for information society and media, in a statement.

Germany has argued that Bonn-based Deutsche Telekom should be granted a "regulatory holiday" because of the massive investments it has made in its broadband infrastructure.

Reding argued that such breaks are "an attempt to stifle competition in a crucial sector of the economy and in violation of the EU telecom rules in place since 2002."

The commission is targeting amendments in the German law that effectively exempt Deutsche Telekom's fast Internet access network from competition. The amendment was requested by the company, which is still partly owned by the German government.

■ PAUL MELLER, IDG NEWS SERVICE

Effort to Sell Bankrupt BenQ Mobile Fails

MUNICH

ATTEMPTS TO find an investor for bankrupt German mobile phone maker BenQ Mobile GmbH have failed, the company's insolvency administrator announced last week.

"I now see no realistic chance to sell the entire company in one piece and enable a new start," administrator Martin Prager said in a statement. "We have to acknowledge that the market has decided against BenQ Mobile."

Munich-based Siemens AG sold its money-losing mobile phone manufacturing business to Taoyuan, Taiwan-based BenQ Corp. in 2005. In August 2006, the new owner announced plans to stop investing in the operation.

After "intensive inquires and market analysis," the last potential buyer withdrew its interest in buying the company, acknowledging that a profitable continuation of BenQ Mobile's handset business was "not realistic," Prager said. He declined to identify the potential buyer.

Since October, Prager has held talks with more than 100 potential buyers and entered into negotiations with 30.

In the coming weeks, the insolvency administrator plans an auction to sell BenQ Mobile's assets.

■ JOHN BLAU, IDG NEWS SERVICE

BT to Open £14M London Data Center

LONDON

BRITISH TELECOM giant BT Group PLC late last month disclosed plans to spend £14 million ($27 million U.S.) on a new data center in southern London. The center is aimed at helping the company strengthen its hosting and management services.

Work on the 930-square-meter facility, which will have biometric security features, should be completed by September, the company said.

BT is looking to grow its data services business by 20% annually, with an emphasis on corporate, public-sector and financial services customers. Rajiv Abeysinghe, BT's data center transformation manager, noted that many BT customers are asking the company to architect and host applications within BT's 70 data centers.

Abeysinghe also noted that BT is looking at potential renewable energy solutions for its data centers as it seeks to cut utility costs. BT is asking vendors to make products with stricter limits on temperature, humidity and air quality, which could allow for more utility savings, Abeysinghe said.

■ JEREMY KIRK, IDG NEWS SERVICE

GLOBAL FACT

$364B

Total value of exports of IT products, from PCs to networking gear, from China in 2006, up 35.7% from 2005.

SOURCE: CHINESE MINISTRY OF INFORMATION INDUSTRY

EC Unit to Study Data Center Energy Use

BRUSSELS

A EUROPEAN COMMISSION group this week will debate whether to create a voluntary code of conduct on energy efficiency for data center operators. The EC said that the renewable energies unit of its Joint Research Center will discuss the idea during a meeting in London.

Antonia Mochan, spokeswoman for the EC unit, said that any code of conduct would be voluntary. Organizations that adopted it would nonetheless agree to abide by certain principles or standards, she said.

The commission has made few regulations about computer energy consumption, said Kevin Fisher, Intel Corp.'s standards and regulations manager for Europe, the Middle East and Africa. Part of the problem is a lack of metrics for establishing efficient server power consumption, although several efforts are under way, he said.

Environmental agreements such as the Kyoto Protocol, which placed limits on countries' greenhouse gas emissions, are driving government interest in reducing energy consumption, according to Fisher. At the same time, large corporations are looking to cut utility costs.

■ JEREMY KIRK, IDG NEWS SERVICE

CSC Awarded $190M Australian Services Job

LEEDERVILLE, AUSTRALIA

WATER CORP. in Western Australia late last month signed a $190 million Australian ($150 million U.S.) IT services contract with Computer Sciences Corp.

El Segundo, Calif.-based CSC has been working with Leederville-based Water Corp., which provides water and wastewater services to cities and towns spread over 2.5 million square kilometers in Western Australia.

Under the new agreement, CSC will be responsible for the ongoing support and maintenance of Water Corp.'s existing applications and for the development and implementation of new systems.

The pact also calls for CSC to provide project, program and demand management capabilities, which will result in faster and lower-cost delivery of systems, the water company said.

■ SANDRA ROSSI, COMPUTERWORLD AUSTRALIA

Compiled by Mike Bucken.

Briefly Noted

Japan and Russia plan to link their telecommunications networks via a new undersea fiber-optic cable connecting Ishikari on Hokkaido, the northernmost of Japan's main islands, to Nevelsk, Russia. The cable, which is expected to be in place by the end of this year, avoids the area south of Taiwan where many cables were damaged in a powerful earthquake last year. It will be able to carry up to 640Gbit/sec. of data.

■ MARTYN WILLIAMS, IDG NEWS SERVICE

LM Ericsson Telephone Co. has made an offer to acquire Southampton, England-based Tandberg Television ASA in order to beef up its expertise in Internet-based TV technology. Ericsson offered 9.8 billion Swedish kroner ($1.4 billion U.S.) in cash for Tandberg, topping an earlier $1.2 billion (U.S.) bid by Arris Group Inc. in Suwanee, Ga. Tandberg sells video encoding and compression equipment.

■ JOHN BLAU, IDG NEWS SERVICE

Google Inc. last week added several new features to its Chinese Google.cn search engine. Google.cn was launched in early 2006 to help Google expand its business in China, where the company's main search engine, Google.com, is sometimes slow or unavailable. The new features include the ability to search Chinese Web sites using Pinyin, a Romanization system for Chinese characters.

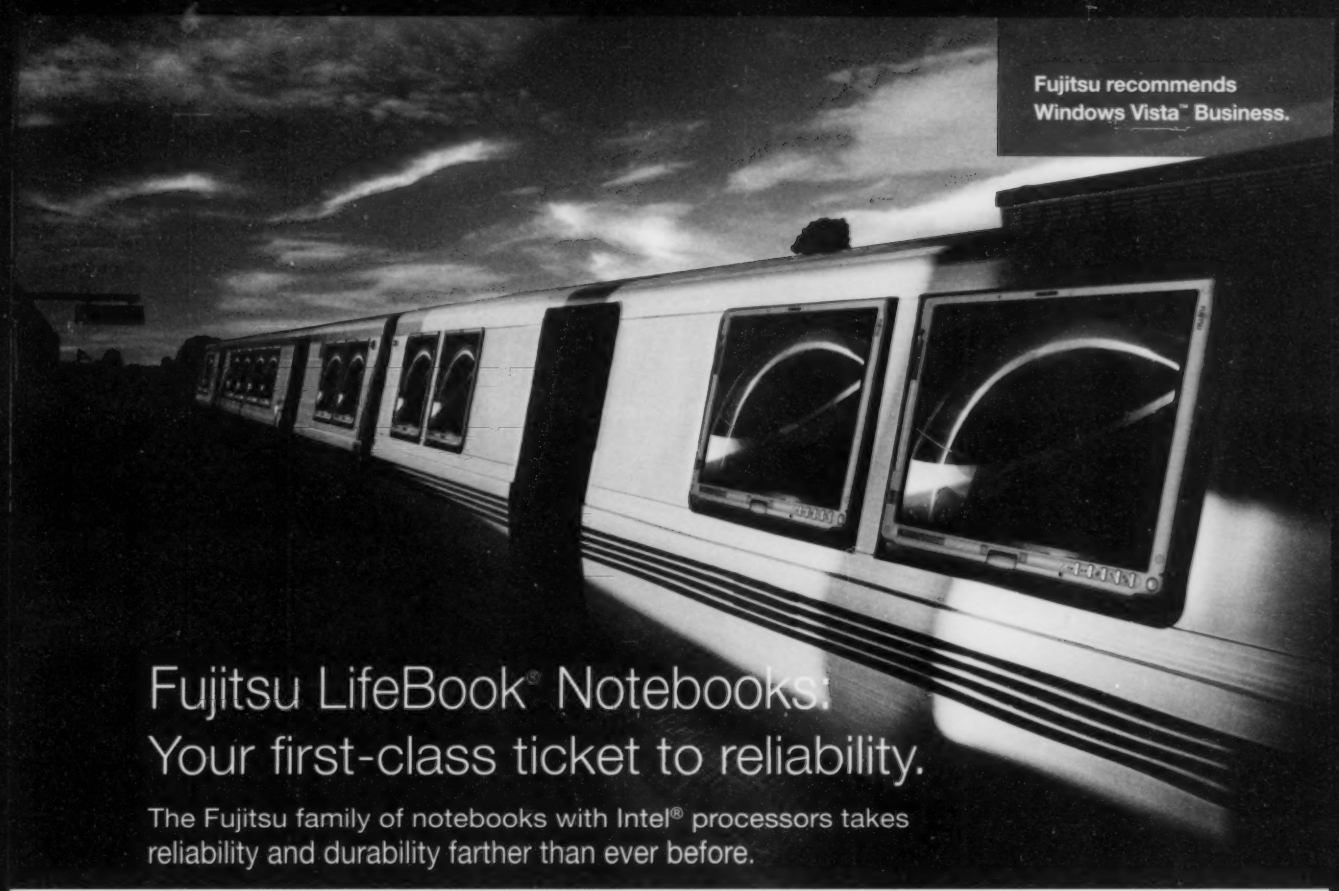
■ SUMNER LEMON AND STEVEN SCHWANKERT, IDG NEWS SERVICE

About half of the work on Intel Corp.'s recently announced "teraflop research chip" was done in India, according to Vasantha Erraguntla, engineering manager at the company's India Research Center in Bangalore. Erraguntla led the design team in Bangalore that worked on the logic, circuit and physical design of the chip. The rest of the work was done in Intel's Oregon research labs.

■ JOHN RIBEIRO, IDG NEWS SERVICE

The National Open Centre, a think tank in Birmingham, England, opened last week to analyze how open-source software can be used in government and the private sector. The center will study issues around open source, such as the use of standards and procurement guidelines, said Ed Downs at the National Computing Centre in Manchester, England.

■ JEREMY KIRK, IDG NEWS SERVICE



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DON TENNANT

Being American

IT'S BEEN FIVE WEEKS since we at *Computerworld* wrote about Kiva, an organization in San Francisco that has set up a Web site to enable anyone in the world with $25 to make a loan to a fledgling entrepreneur in a developing country. In my editorial that week, I wrote about how uplifted we in the newsroom were by our cover story on Kiva, and I mentioned how gratified I was to have been able to take time out from writing the editorial to send a loan to a woman in Afghanistan who was hoping to raise $300 to sell beans and peas on the street.

DON TENNANT is editor in chief of *Computerworld*. Contact him at **don_tennant@computerworld.com**.

The first online comment we received in response to that story was troubling. After I read it, I asked our features editor, Kathleen Melymuka, the driving force behind the story, if she'd seen it.

"I did," she replied. "I didn't want to bring it to anyone's attention because it made me sick."

Edited for clarity and brevity, the reader's comment went like this:

"First, I am disillusioned with any organization that does not [contain] its efforts within the U.S. natural borders. The time [has come when] giving to or assisting anyone outside the U.S. is a traitorous disservice. I say to hell with the rest of the world, and return to making this country infallible, the most protected, the most affluent, the most educated, the most powerful, and let the others get off their cans and grow up. If they don't know how by now, they are not worth our consideration. Do any of you have a good excuse for helping those who hate and kill us, rip us off through operations like Kiva? Come home to America and let the dregs fend for themselves."

It was, to be sure, a sickening diatribe. But I'm recounting it here for the simple reason that the outpouring of support for Kiva that it elicited from other readers was even more uplifting than the original story itself.

"Many people in the U.S. are grateful for the philanthropic opportunity that this Web site provides," one of them wrote. "Many of my friends are disillusioned by those within U.S. borders who take advantage of welfare programs without any real desire to change their condition, while others in these foreign countries are hard-working, brilliant entrepreneurs who would have already succeeded had there been the infrastructure in place to lend them these paltry sums of money to start their businesses."

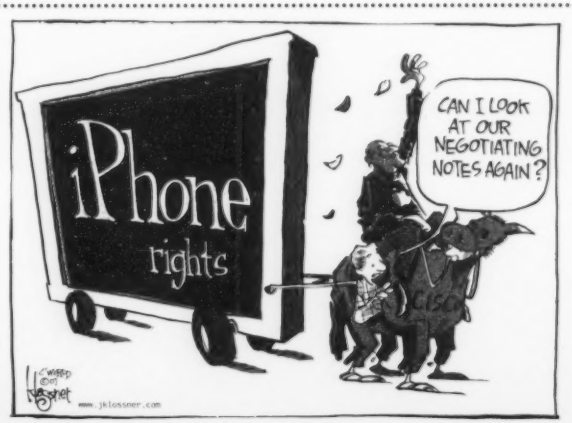
"What happened to the 'Bible belt'? Did it get twisted too tight and wrapped around our hearts and souls?" another reader asked. "Just like an ungrateful child who stands on the labor of the parent and takes personal credit for the comfort he/she lives in, an ungrateful citizen of the world is just as toxic. Pollution of the soul — that separatist, nationalistic, 'one side of the pond' mentality — is why we are in the mess we are in."

"The primary thing that has built this wonderful country is opportunity and self-reliance," wrote a former U.S. Army officer who so far has made 80 loans through Kiva. "That's exactly the sort of ideal that Kiva is supporting in poor countries."

"It's just neighbors helping neighbors, albeit across a few borders," he added. "What could be more American than that?"

Nothing, as far as I'm concerned. By the way, I took time out from writing this editorial to make another $25 loan, this time to Regina Njeri, a woman in Kenya who needs $150 to buy a dairy cow. Let's just say I don't feel like a traitor.

Don Tennant



JOHN D. HALAMKA

Time for a Digital Spring Cleaning

MY COLUMN "Storage Is the Fifth Utility" [July 18, 2005] declared that all IT users expect heat, power, light, network bandwidth and storage to be ubiquitously available utilities. Today, I'm back to share a lesson learned: The demand for any free service is infinite.

Since I wrote that column, demand for storage has doubled. I now have more than 100TB of spinning storage. What can I do to manage this insatiable demand?

The first thing to note is that 80% of our storage is consumed by 20% of our users. Should I bother to go after the 100MB users when I have a few dozen 500GB users? We've identified these truly large consumers and considered low-cost alternatives for them.

JOHN D. HALAMKA is CIO at CareGroup Healthcare System, CIO and associate dean for educational technology at Harvard Medical School, chairman of the New England Health Electronic Data Interchange Network, CIO of the Harvard Clinical Research Institute and a practicing emergency physician. Contact him at **jhalamka@caregroup.harvard.edu**.

I am a strong believer in centralized storage to protect the integrity of mission-critical corporate data — anything that must be safeguarded under the Health Insurance Portability and Accountability Act, that is required to be stored under the Sarbanes-Oxley Act or that could have devastating consequences in a data spill like the one suffered by TJX. But it may be prudent to leave the massive amounts of data that belong to some users on local storage systems.

For example, if a researcher generates a 100GB image of a microscope slide and notes that it isn't mission-critical, doesn't need to be highly available and is unlikely to be retrieved more than once in the next few years, should I keep that image on spinning storage or near-line archival media? Maybe offline tape,

magneto-optical disk or a FireWire drive from CompUSA is the most cost-effective approach for this type of user. At $20,000 per terabyte a year for enterprise-class storage, information life-cycle management and backup, I can't afford to offer infinite free centralized storage to meet the demands of high-volume users who rarely access the stored data.

Certainly, we'd make a lot of headway by targeting that 20% who are high-volume users, but reducing the storage demands of our 20,000 low-volume users would also reap a few terabytes. Here, I can lead by example: I recently cleaned up my own digital universe and reduced my entire data storage to 250MB of current documents and an archival DVD of media. Who needs that PowerPoint from 1999 or that budget from five years ago?

A cursory review of the file contents of low-volume users reveals quite a lot of 7-megapixel family photos, vacation MPEGs and MP3 collections. Our first step is a program of education, warnings and human resources review.

Last week, I sent an e-mail to all users explaining the cost of archiving family photos for a decade on central storage systems and reminding them that corporate IT use policies prohibit personal MP3 storage.

We're installing new monitoring software over the next month to identify the most significant abusers of this policy. We'll share the list of folks storing their personal media on centralized storage with the senior vice president of human resources and the abusers' managers so they can reinforce education and warnings. I don't want IT to be the content police, but public disclosure of violators' MP3 collections may be quite effective.

We could also use market forces. MIT used to provide free warehouse space for the junk that accumulated in its labs. As real estate values in Cambridge, Mass., skyrocketed, the cost became prohibitive, so MIT imposed a very small fee per square foot of warehouse storage. Suddenly, a lot of the junk went into the Dumpster.

Spinning archival strategies, even Serial ATA drives, are not cheap when they become the digital equivalent of the MIT warehouse. Following MIT's example, we could start to charge for storage, providing the first 500GB per department at no cost, for example, and then charging $1 per year for every gigabyte thereafter. Another idea would be to offer a bounty, paying users $1,000 for each terabyte they delete. Cisco recently did this and recovered a massive amount of storage.

So, do your CIO a favor — do a little digital spring cleaning. The IT budget depends on it.

WANT OUR OPINION?

More columnists and links to archives of previous columns are on our Web site:
www.computerworld.com/columns

READERS' LETTERS

Intravenous News

GREAT ARTICLE! I forwarded it ["Why Search Is a Developer's Most Powerful Tool," *Computerworld.com*, Feb. 1] to my software engineering manager. The trouble is, he doesn't have time to read it. In addition to the digital and print versions of the article, does it come in the form of an IV that I can jab in his arm?

Leon Michaud
Senior software engineer, Mentor, Ohio

No Time for Surfing

THE NEXT thing you know, we'll be talking about what impact a comet hitting the Earth will have on the Internet ["Web Use Spike in Pandemic May Make Telework Tough," News, Feb. 12]. All the doomsday predictions about what will happen in the flu pandemic are amazing. The reality is that if that many people are dying, people will have other things to worry about than getting on the Internet.

Bob Sibson
Enterprise architect, Adelaide, South Australia

Deciding Who Will Get the Big Bucks

THE ENTIRE discussion in the article "Caught in the IT Pay Squeeze" [Management, Feb. 5] condenses down to one question: "Are we mature, intelligent, sentient beings, or are we just spoiled children?" If one person has more skills than his peers, then why should he not receive compensation reflecting that? But how do we define that fine line of capability? Well, if we can't determine that, then we should all go back to kindergarten.

Paul M. Mrozinsky
Electrical manufacturing process engineer, Montgomery, Ala., pmmrozinsky@worldnet.att.net

Why Wait for Patch?

EVERY ARTICLE I have seen on the Excel and Word vulnerabilities talks about ridiculous things like waiting for a Microsoft patch or not opening documents from untrusted sources (even though yesterday's trusted source might become today's infection), but nothing about alternate solutions ["Excel Vulnerable to New Attack," *Computerworld.com*, Feb. 5]. These include opening the document in a sandbox where it can't do any damage to the system, using another spreadsheet or word processing program, using WordPad (after all, it is not on the list of vulnerable programs – or is this a Microsoft oversight?) and opening the document with Notepad to at least get the gist of the document.

Howard Mirkin
Bangkok, Thailand

Passé Passwords

RIGHT ON, Frank Hayes! Passwords are ineffective ["Passwords – Why?" Frankly Speaking, Feb. 5] because they are required for almost every application or service available on the Internet. Just walk around your workplace and look at the cubicles. Many are covered with yellow stickies, and the vast majority don't contain meeting reminders; they contain passwords.

Another advantage to dongles is that when we lose a dongle, we know it's missing; when a password is lost or purloined, we usually don't know it's gone until it's too late.

Lou Washington
Senior business manager, Cincom Systems Inc., Cincinnati, lwashington@cincom.com

Step 1: Acknowledge The Spam Problem

IN THE article "A Clean Slate for the Internet" [Strategies & Tactics, Feb. 12], Robert Kahn, a co-inventor of TCP/IP and CEO of the Corporation for National Research Initiatives, says that what is deemed to be spam or even pornography can vary depending on who is viewing it. Kahn may be right about pornography, but spam is iron-clad: It is "the same thing many times." If it's e-mail, if all of the addressees did not request it, and if it's sent to more than one addressee, it's spam.

I'd say Kahn and people like him are the reason we don't have a technological solution to the spam problem. Pretending that you don't know what the problem is makes it easy to claim it can't be solved.

Rich Tietjens
IT technician and training coordinator, Tualatin, Ore.

Let's Stop Crabbing About Success

WHILE THE items cited in the article "Microsoft Settles Embarrassing Antitrust Suit in Iowa" [*Computerworld.com*, Feb. 14] are signs of an overzealous organization, I'd hardly call them embarrassing except to a business neophyte still cloaked in the fallacy of fair play and the illusion that the best product wins. I fell off that bandwagon back when Betamax failed. The glaring omission in the article was how much the civic-minded lawyers were getting from the class-action suit. I'm always shocked at the percentage of the take these sharks get from their nuisance suits. Hard to believe that $330 million is a nuisance suit, but to the likes of Microsoft, it appears to be only a nuisance.

Why is it that Americans always root for the underdog and belittle success? Must be the crab syndrome.

Stephen Cook
Solutions architect, Poway, Calif.

Evolution of Tech Is Accelerating

GARTNER IS a reputable company with great dedication to informatics intelligence and metrics. I am not debating its survey ["Gartner: CIO Exclusion, Business Skill Shortages Constrain IT Growth," *Computerworld.com*, Feb. 15], but I can describe a phenomenon that will topple most brick-and-mortar edifices. I have witnessed the evolution of corporate computing over 40 years. It is not a straight-line correlation. It is not a parabolic behavior, either. It is fractal and stochastically recursive.

It's like what Mario Andretti said: "If things seem under control, you're just not going fast enough." Technology is not merely moving, but accelerating. IT personnel are having a hard time catching up with updates, fixes and new products. Personnel don't have the time to learn the anatomy of their companies. I predict that good leaders will become their own CIOs. It is going to be a successful formula for on-demand profitability. The fact that technology has taken over in most successful companies is an indication that we are in a full technological resonance (it is not a paradigm shift anymore). We are in a technological brawl with no rules. Companies have to stay lean in order to minimize their own internal entropy. Remember, we may not be interested in chaos, but chaos is interested in us.

Rocky Termanini, Ph.D.
Vice president of technology, Merit International Security Consultants, Stamford, Conn., rtermanini@meritsecurity.net

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 1 Speen Street, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

STRATEGIES & TACTICS

Inside 03.05.07

Banking on IT in China. Chinese banks are moving from antiquated processes to state-of-the-art technology — and it's happening at a scope and pace never seen before. **PAGE 26**

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The Virtual Desktop

Streaming virtual applications to users can greatly reduce IT support costs, but there are some caveats. **By Gary Anthes**

PARSONS CORP., a $3 billion construction and engineering company based in Pasadena, Calif., once had hundreds of fat clients on the desktops of its engineers. That spelled nothing but trouble for the IT staff. "We had cadres of IT folks who would go around with CDs, and they'd push the user aside and say, 'Hey, go have a smoke while I download this application,' " says CIO Joe Visconti.

That was only the beginning. "If it was something like AutoCAD, it could take an hour to load, then the IT guy would have to configure it," he recalls. "Then he'd get a call a few minutes later saying, 'Hey, this is not running. Help me.' Then, as soon as there was a patch or new release, someone would go through all the desktops again."

Keeping track of which users had which versions of an application, who had various patches and so on was a nightmare, Visconti says. And if a user needed multiple versions of software for different engineering projects, the versions had to be installed and uninstalled as his needs changed.

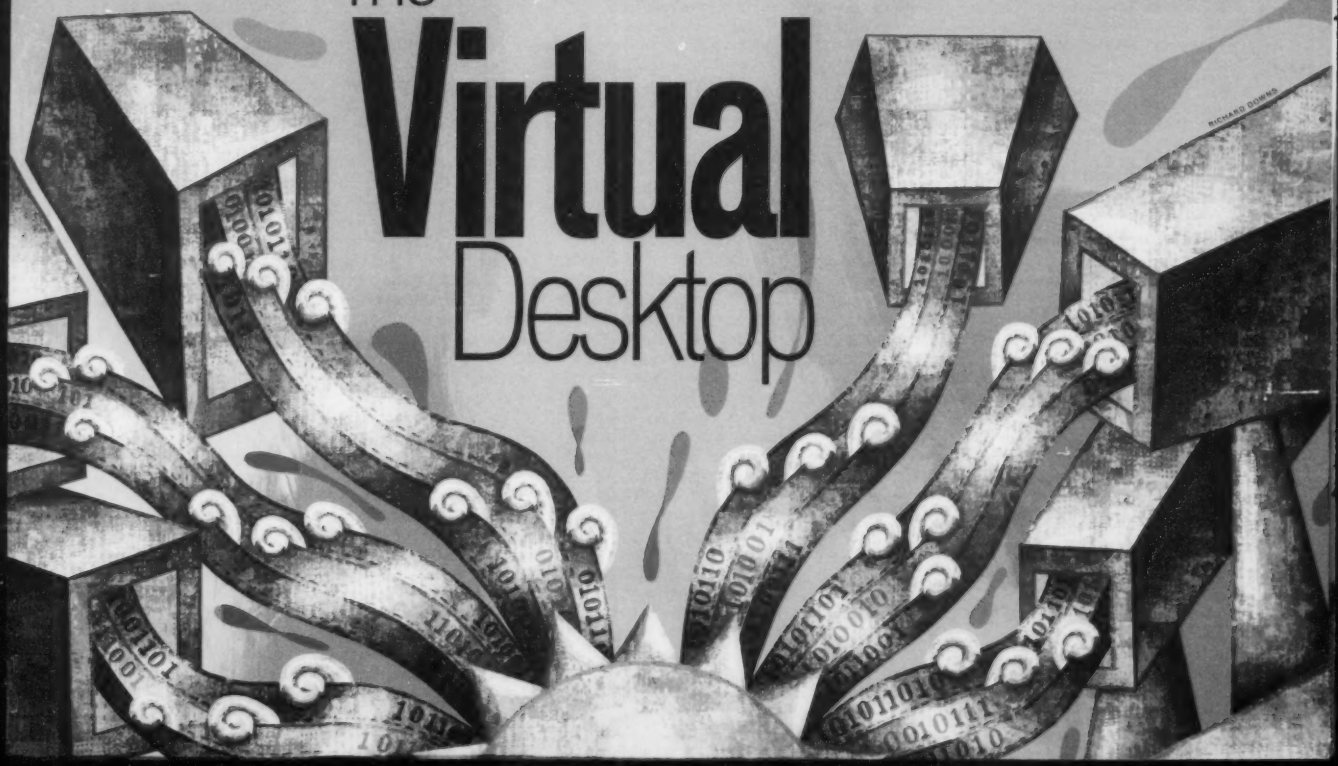
That was the lay of the land in most IT shops as the century turned, and it's the way things still are today at many companies. But new models of computing are taking hold as IT looks to reduce the cost and complexity of managing PCs. Among these are the virtualization and streaming of desktop applications, with the goal of moving the management of desktops to the data center, where it can be done more easily, more securely and often more cheaply.

The virtualization and streaming of applications evolved from a long heritage. In the 1970s, dumb terminals connected to mainframes. The big desktop boxes were aptly named; all they did was collect keystrokes and deliver boring green text. Then in the 1980s came minicomputers and PCs, connected in a paradigm-busting arrangement called client/server computing. These desktop machines were far from dumb; they were called "fat clients" because they were fully loaded with processors, memory, disk drives, I/O devices, operating systems and application software.

In the 1990s, things got a bit more complicated. IT managers discovered that still more tiers could bring even better performance, flexibility and scalability. Applications could be broken into presentation, business logic, data access and data storage layers, each residing where it worked best.

At the same time, there was a backlash against the cost and complexity

Continued on page 24



_INFRASTRUCTURE LOG
_DAY 27: These compliance regulations are killing us! Audits. Inconsistencies. Processes. Time. Money. I feel like I'm being chased by regulators.
_Oh, wait. I am being chased by regulators. Run!!!!!
_DAY 28: I've got it: IBM Tivoli middleware. It automates system administration to standardize compliance policies. It centralizes processes to minimize the headaches of new and ever-changing regulations. And it helps pinpoint security issues before they become problems and maintains business integrity.
_Gil is bummed we had to ditch the high-carb diet.
IBM
Tivoli.
Better manage the business of I.T. at:
IBM.COM/TAKEBACKCONTROL/COMPLIANCE

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Continued from page 22

of fat clients, and some IT managers turned to "thin clients" and "network computers," basically dumb terminals with a grade-school education.

But these days, operating system upgrades, new applications, bug fixes and security patches have escalated in frequency. Users are more likely to install their own applications and even demand that IT install special software for them. Substantial portions of IT staffs travel from desktop to desktop, keeping PCs running properly.

Enter virtualization — which isolates the application from the operating system and other applications — and streaming, which delivers the application to the user.

By moving the management of desktops to the data center, this combination can reduce hundreds of desktop environments to one that's under lock and key, while giving the user the illusion that he still has a fat client. Or a server can hold multiple desktop images, each tailored to a specific user's work based on profiles stored in a directory.

Then, when the user needs them, those applications — and sometimes complete operating environments — can be "streamed" over the network to the desktop, where they execute locally, without the server and communications overhead that comes from traditional client/server or thin-client computing. Some products allow the streaming of just those pieces of software actually needed for that session — perhaps just 20% of an application's code — minimizing the demand for bandwidth, memory and disk.

Virtualization allows the streamed applications to reside in their own self-contained operating environments. They can be encapsulated, with their own Dynamic Link Libraries (DLL) and registry settings, so that multiple versions of an application can coexist without conflicting. When something goes wrong — say, a PC gets a virus infection — a new desktop image can be streamed to the user without a visit from IT.

But there are some caveats. A robust network is required to avoid delays while streaming occurs — although applications can sometimes be started before they are fully downloaded, and parts or all of commonly used applications may be cached locally. If a connection can't be maintained, as with a laptop in motion, whatever software is needed until a connection is restored must be cached to a local disk. And there are enough differences from traditional computing methods to require some attitude adjustments on the part of both users and IT support staffers.

At Parsons, Visconti installed a streaming tool called AppExpress from Endeavors Technology Inc. in Los Angeles two years ago. Now, he says, "I can get anybody up, anywhere in the world, on any application in five minutes. As soon as I have a patch, I patch it on the server, and in a few minutes, everybody has the new version."

But AppExpress is not a conventional software-distribution tool. A Parsons engineer indicates via a Web portal which project he is going to work on, and a homegrown configuration management system instructs AppExpress to stream the needed applications to his desktop. It also streams configuration parameters related to printers, plotters and other devices.

"First, the server establishes whether the user has the application on his desktop," Visconti says. "If not, it streams just enough so it starts to execute."

While taking inventory of desktop contents, AppExpress can also find and report bootleg software, he says.

Visconti says Parsons may have saved as much as $1 million last year from the streaming technology, which served 600 PCs. "We are cutting the cost of IT support almost to nothing," he says.

And Visconti says the "on-demand" nature of streaming — the user gets the application only when he needs it and for only as long as he needs it — has important software licensing benefits as well. He is striking enterprise agreements with software vendors that allow payment based on actual usage, which is determined at the end of each quarter. That kind of agreement enables Parsons to install all of a vendor's products on AppExpress servers while paying for only the ones actually used, he says. And new applications get to users in minutes, not days.

Alternate Approach

The Cleveland Municipal School District takes a slightly different approach, using a pair of complementary products for software streaming. It uses the Software-Streaming Platform from Ardence Inc. (recently bought by Citrix Systems Inc.) to stream a standard "base layer" — the operating system plus the core applications that all users need, such as Microsoft Office and Adobe Acrobat — on each of 15,000 PCs in 104 buildings.

If a local machine becomes infected or corrupted in some way, it is simply rebooted using a new desktop image streamed from the data center, and the user is back up in minutes. "The dream is to get all the desktops identical, then worry about layering applications on top of that," says school district CIO Thomas Bender.

At the application layer, the school district uses AppStream from AppStream Inc. in Palo Alto, Calif., to provide applications that vary by user or user group, such as seventh grade math students at a particular school. It taps into Active Directory for student profiles, and it can support software license management by metering application use, Bender says.

Streaming has made it possible to centralize IT into one data center rather than have servers distributed around the metropolitan area, Bender says. But, he adds, that would not have been practical without a network that features 1Gbit/sec. fiber links to each school.

Russell Investment Group in Tacoma, Wash., has a number of Windows XP desktops, which it calls "trim clients," that receive applications published from Citrix Presentation Server. Although it will continue to use Citrix for remote access and delivery of client/server applications over its WAN, during the coming year Russell plans to migrate to Microsoft's SoftGrid for delivery of applications to fat clients, says Greg Nelson, a senior technology consultant.

He says the need for access to rich media, such as video, has required compromise on a hybrid client computing model in which business applications are delivered via Citrix but rich content is redirected to the local desktop via SoftGrid. That will provide the benefits of server-based computing at a lower cost, with reduced complexity and increased flexibility, he says.

SoftGrid creates "encapsulated" virtual applications on a server and streams them to desktops as requested by authorized users (see illustration). This encapsulation, or wrapper, has a number of benefits, Nelson says.

Application testing is easier because encapsulation eliminates DLL conflicts and permission problems. It also reduces the number of servers required for physical isolation of applications. Russell says he was able to reduce the number of Citrix servers by 50%.

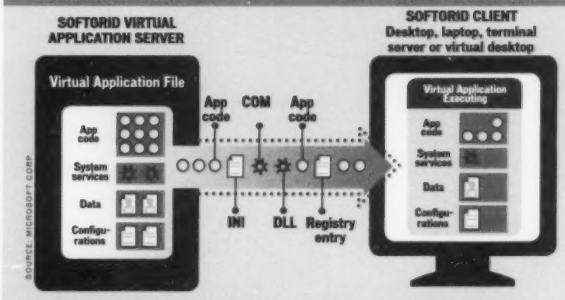
Migration to Windows Vista will be far easier than earlier upgrades were, Nelson says, because the applications are already abstracted from the local operating system.

Running applications on the desktop gives users better performance, Nelson says. The PCs Russell buys today have dual-core processors, 1GB to 2GB of memory, powerful video capabilities and cheap disks. With no server overhead or network latency, it just makes more sense to run applications locally, while still enjoying the benefits of centralized desktop maintenance that streaming offers, he says.

Nelson sums it up this way: "In a perfect world, I'd love to go all thin-client, but that's not going to happen. What people want is rich content. People are becoming more mobile, and more richly connected." ▸

How It Works

Approaches to software streaming and application virtualization vary from product to product. Here's how Microsoft's SoftGrid works:



When a user requests a new application, the central server streams only the code necessary to start the program – typically 20% to 40% of the total code. When the session ends, settings are saved locally for subsequent use.

Virtualizing applications before they are streamed ensures that they can't interfere with one another, with other client applications or with the client operating system. Each application "sees" only its own settings and runs at full performance levels with access to local services.

Virtualization Success Stories

Visit our Web site to read how desktop virtualization paid off for five IT groups.

www.computerworld.com/hardware

IBM

_INFRASTRUCTURE LOG

_DAY 16: It's out of control. It takes people forever to access...everything. Nobody can get anything done. We're so inefficient. There's got to be a better way.

_DAY 17: Gil says he's found one: aerodynamic bodysuits. He says everyone will be able to work faster and better now.

_DAY 21: I've taken back control with IBM WebSphere Portal. It seamlessly integrates our apps, processes and info. People have what they need to be more effective. Now we have a customizable interface that puts everything at our fingertips.

_Productivity is up. Gil says that's great, but he refuses to take off his suit.

WebSphere. Portal

Download IBM's WebSphere Portal ROI Tool at:
IBM.COM/**TAKEBACKCONTROL**/PORTAL

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Banking on IT

Operational imperatives, customer demands and foreign competition are forcing a burst of IT investment that will transform Chinese banks.

SHANGHAI

IN THE first 10 months of 2006, Chinese regulators uncovered 776 banking crimes, including 205 cases involving more than 1 million yuan ($125,000 U.S.). Fraud and other irregularities at Chinese banks added up to $95.9 billion in 2005, an increase of 31% from 2004, according to the China Banking Regulatory Commission.

In one widely publicized case last summer, a government audit uncovered financial crimes and bookkeeping irregularities totaling 52 billion yuan ($6.45 billion) at the state-owned Agricultural Bank of China, the country's second-largest bank in terms of assets.

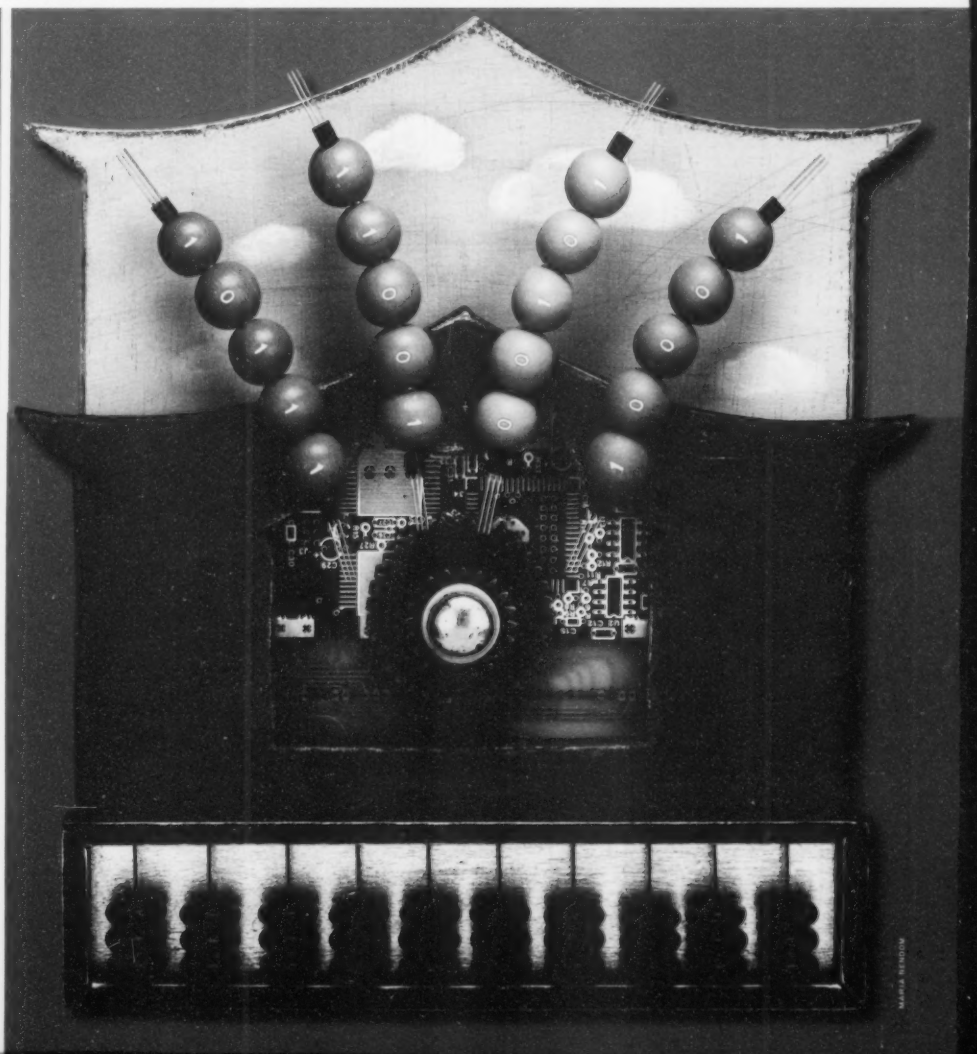
With losses that big, it's no wonder Chinese banks are investing heavily in risk management technology. For example, Agricultural Bank of China last year rolled out a new real-time monitoring system to reduce fraud.

But adopting technology for risk management and fraud control is only part of the Chinese banking industry's agenda. Banks are centralizing operations, improving financial reporting, automating manual processes, improving customer service and developing new products to compete in an expanding marketplace.

And like their counterparts in the U.S., many are feeling the pinch of new regulations. IT is at the heart of all this activity, and the scale and speed at which the Chinese banking industry is ramping up may be unprecedented.

"The scale is tremendous," says Elias Baltassis, director at the Paris office of New York-based consulting firm Opera Solutions LLC. Moreover, Chinese banks have to upgrade all their systems at once because they are behind in every area. "This is a problem U.S. banks never had," Baltassis says.

Chinese banks are buying new IT systems "across the board," for areas such as core banking platforms and risk management operations, as well as physical infrastructure systems



in China

By Maria Trombly

such as ATMs, says McKinsey & Co. partner Chris Ip, who heads the New York-based management consultancy's greater China IT practice.

Until now, Chinese banks have operated in a fundamentally different way from banks in the U.S. In many Chinese banks, each branch borrows and lends money almost as if it were a stand-alone business, says Colin Lawrence, risk enterprise and transformation leader for greater China and the Asia-Pacific region at IBM Global Business Services. For example, if a branch needs money to issue a loan, it will turn to the interbank market — where Chinese banks lend money to one another — and pay for the privilege.

"If each branch sets its own prices and lends its own money, it's obviously inefficient," Lawrence says. "By having a common system, you can combine all the deposits and all the loans from the entire bank, reducing the need to go to the interbank market."

One organization that appears to have gotten ahead of the wave is Bank of Communications Co., the fifth-largest bank in China. In August, it completed a project to centralize data for its retail operations, with the help of Sterling Commerce Inc., a Dublin, Ohio-based IT consultancy.

Working with a Western partner is a common practice among Chinese banks. Bank of Shanghai, for example, hired Hewlett-Packard Co. two years ago to build a standards-based service center that reduced the costs and processing time of online transactions. HP in turn worked with Temenos Group AG, a provider of banking systems in Geneva.

Bank of Shanghai is considering working with Temenos again, says Chen Chen, an IT manager at the bank. But Chen says foreign vendors must work to localize their systems for Chinese needs — beyond just adding Chinese character support. "Business requirements are different from abroad," he explains.

For example, Chinese banks still need to improve nonperforming-loan ratios and transparency, says Michael Araneta an IDC Financial Insights analyst based in Singapore. Converting paper processes to electronic systems is also critical, but so is organizational restructuring, he says. "The benefits of having straight-through electronic processes — such as increased productivity of staff, improved turnaround times for products, elimination of errors and better management of operations costs — will be limited if Chinese banks continue to have systems that are not integrated and if branches continue to operate as islands by themselves," Araneta says.

BIG JOB

Chinese banking operations are huge compared with their Western counterparts.

Agricultural Bank of China	50,000+ branches
Industrial and Commercial Bank of China	20,000+ branches
Bank of America (the world's largest bank by market value)	5,700 branches
Citibank	1,400 branches

But with data centralization comes the challenge of keeping all this newly accessible data safe. Here again, Chinese banks are working with international vendors to take advantage of their experience and best practices.

And those are sorely needed. A Sterling Commerce study showed that many Chinese banks transfer files using free software that they've downloaded from the Internet.

"Freeware has a lot of security loopholes," says Albert Visscher, Sterling Commerce's marketing director for the Asia-Pacific region. It increases the risk of data breaches and can cause operational problems, he says.

Badly managed credit risk is another big problem. Chinese banks are notorious for bad loan portfolios and government bailouts. "In practice, many [Chinese] banks are not able to discriminate between high- and low-risk borrowers and price accordingly," says Mark Lawrence, a principal at McKinsey. Credit risk management systems can improve banks' bottom lines and create opportunities for new revenue by making it possible to charge higher-risk borrowers higher rates.

"The theory is known. The main challenges now are practical implementation challenges," he says.

New Competition

New international competition is raising the stakes. In December, the Chinese government opened the country's banking sector to foreign firms, and at least 10 banks have already applied for licenses to incorporate in China. Incorporation will allow them to issue credit cards and offer yuan-denominated bank accounts to Chinese customers.

And those customers might be interested in the new arrivals, because the quality of service offered by Chinese banks has been a sore spot. For example, at the country's largest bank, Industrial and Commercial Bank of China, wire transfers can take three days. In contrast, they're virtually instantaneous in many other parts of the world. And a Chinese bank customer who loses an ATM card may find that it's less onerous to open a new account than to get the card replaced.

Advanced IT enables foreign banks to offer better service, which can be particularly attractive to affluent customers, says Christopher Formant, executive vice president for global financial services at BearingPoint Inc., a McLean, Va.-based IT outsourcer with a strong presence in China.

To meet that challenge, Chinese banks are ramping up quickly. "I know of a bank rolling out a new core banking platform in less than one year," says Ip. In the West, such a project could take years, he adds.

Chinese banks are able to move so quickly in part because they're deploying new technology so late in the game. The problems they're addressing have already been solved by other banks. "The solutions exist," Opera Solutions' Baltassis says.

But it's not quite as simple as it sounds because the software has to be customized. "Off-the-shelf [software] will cover 90% of the distance," he says. "The competition takes place in the last 10%."

Many banks in China underestimate the complexity of implementation, Ip says, citing the frequent need to build Chinese-language interfaces. But some say that Chinese banks primarily lack the skills and experience needed to use this technology.

"It is time for the big banks to focus on the people and process side," says Charles Richard, co-founder of Quantitative Risk Management Inc., a risk management consulting firm in Chicago.

Chen echoes this view. "I don't think the weakness lies on the IT side," he says. "It's on the business side."

To keep their best customers and compete with foreign banks, Chinese banks are also investing in technology to support new lines of business. Last year, for example, Agricultural Bank of China went live with software from London-based Misys PLC to handle trading and risk management of treasury market derivatives and structured products. It uses a straight-through processing system that covers transactions all the way from the front office to the back office.

The move was also driven by the China Banking Regulatory Commission's requirement that banks implement technology before engaging in certain types of business.

"We did it to meet CBRC's regulatory requirement," says an IT manager at China Merchants Bank, another early adopter. "If we want to trade derivatives, we must have this kind of system."

And if China needs it, China will have it. "The pace of change and the growth is extraordinary," Formant says. He predicts that over the next decade, Chinese banks will take their place among the world's leading financial services companies.

Richard agrees. "I see the evolution not taking 10 years or five years," he says. "I see these modern methods coming together very quickly."

Wendy Yu and Patrick Martino contributed to this report. Trombly is a freelance business and technology writer based in Shanghai. Contact her at maria@trombly.com.

Career Watch

Hunter Muller

Q&A

TITLE: President and CEO

ORGANIZATION: The Advisory Council, Norwalk, Conn.

CHARTER: IT research and advisory services

As the IT labor market continues to tighten, one of the top challenges CIOs face is retaining and recruiting top IT talent.

But who's looking out for No. 1? *Computerworld*'s Thomas Hoffman spoke with Hunter Muller about the types of personal career development issues that CIOs are concerned with.

What types of concerns do CIOs have about their own careers? There are four areas. Item 1 is in the context of their current role – do they have a seat at the table of the executive committee? And if they do, the age-old question is, are they aligned with the business? Second, are they networked effectively in the industry, both within their own vertical industry and among peers around the world? Third, are they constantly refining their own skill set, leadership style, and technical and business knowledge to prepare for their own role? Finally, are they ideally positioning themselves for their next opportunity?

What are some steps they're taking to address these issues? To gain boardroom credibility, if there isn't any kind of measurement or scorecard process in place, CIOs are interviewing business executives to see how they view the technology area. Then, what are the next steps you want to improve from an IT-business alignment perspective? A lot of organizations don't have that type of governance in place.

How are CIOs positioning themselves to take advantage of upcoming opportunities? Networking and staying connected to industry groups, such as the Society for Information Management. These include local groups that provide you with that fabric in your local region.

Degrees of Higher Earning

$127,000

Total cost (tuition, fees, lodging and other expenses) for a two-year executive MBA program at Columbia University.

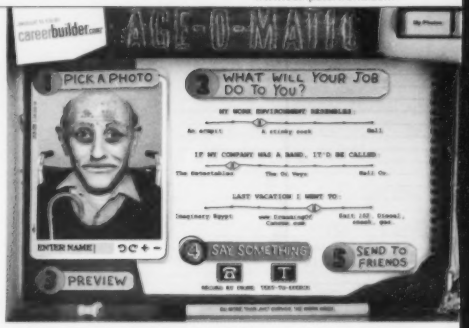
$129,740

Mean salary of students who graduated from an EMBA program in 2006. That's about 20% higher than the mean salary of those entering such programs.

SOURCE: EXECUTIVE MBA COUNCIL

WHEN YOU'RE 64

EVER WONDER WHAT YOUR JOB IS DOING TO YOU PHYSICALLY?



You can see a humorous version of your retirement-age self at CareerBuilder.com's Age-o-Matic Web site, where you can upload a photo of yourself (or your dog, for that matter) and then answer three randomly selected questions about your job, your boss or your company. The site then adds gray hair (or removes large patches of it), wrinkles and other extreme effects of aging. Warning: The questions are slanted to guarantee an off-putting result. For example, the choices for the fill-in-the-blank query "I work in ___" are "a funk," "a haze" and "a hazmat suit." If your answer would be "I work in a state of constant bliss for the best boss in the world," this isn't the site for you. But then, you probably aren't spending work hours looking up time-wasting sites on the Web.

To Certify or Not to Certify: Getting Paid for Your Skills

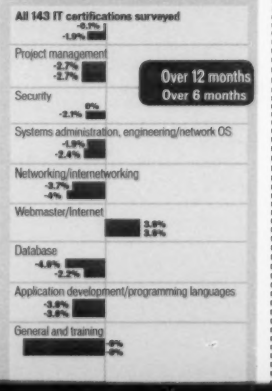
SURVEY RESULTS

CERTIFICATIONS ARE TAKING A HIT. Foote Partners LLC does a quarterly assessment of skills pay, which is the portion of pay directly attributable to a high-value technical skill. For the most recent report, 60,000 IT professionals in North America and Europe were surveyed during the fourth quarter. The results: Premium pay for 143 top IT certifications was flat for the preceding 12 months, while the premium pay for 127 noncertified skills increased by 7.7% during that time period. Worse, certified skills pay fell 1.9% during the second half of the year. And average certification pay had gained just 3.2% over the past two years, compared to 13.3% for noncertified skills pay.

What does it mean? David Foote, the firm's CEO and chief research officer, notes that "gold standard" certifications like the PMP and CISSP remain highly valued. But a lot of certifications aren't keeping up with the pay bumps that IT workers can get for skills that aren't certified. "Our employer surveys are telling us that employers increasingly desire workers who understand the industry in which they're working and have experience in specific systems, software and solutions," says Foote. "And they want workers who can operate under tough deadlines and withstand a certain amount of organizational discomfort. If you're that kind of person and you have demonstrated technical skills, not being certified will probably not matter if you have other important strengths – business, customer, interpersonal – in the right proportions for the job."

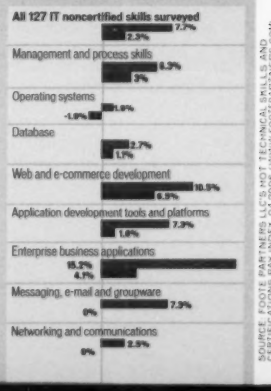
Certified Skills

Percentage change in average median premium pay, by category, Q4 2006



Noncertified Skills

Percentage change in average median premium pay, by category, Q4 2006



SOURCE: FOOTE PARTNERS LLC'S HOT TECHNICAL SKILLS AND CERTIFICATIONS PAY INDEX, Q4 2006 (WWW.FOOTEPARTNERS.COM)

PAGE COMPILED BY JAMIE ECKLE

Juniper NETWORKS

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MEMS

DEFINITION

MicroElectroMechanical Systems (MEMS) technology enables the creation of tiny machines that can work with microelectronics. MEMS also refers to the machines themselves, which add very small sensors and actuators that allow microchip-controlled systems to sense and control their environments.

BY RUSSELL KAY

"THE VERY rich are different from you and me," wrote F. Scott Fitzgerald. Similarly, very small things operate under different constraints than the machines and tools we're accustomed to seeing and using in everyday life.

In the microscopic world, the standard principles of classical physics don't always hold true. Factors such as weight, inertia and thermal mass become less important, while forces related to surface area, including friction and surface tension, take on much greater significance. Think about how an ant is able to carry something many times its own weight or a water bug can skate across the surface of a pond. It's a different world down there.

We humans can take advantage of these differences through MEMS, in which tiny, sometimes microscopic mechanical elements are created on silicon chips using fabrication technologies similar to those used for making integrated circuits.

MEMS — also referred to as micromechanics or micromachines — can refer to both the technology and the specific devices, which range from a micrometer to a millimeter in size. Smaller devices are called NanoElectroMechanical Systems (NEMS) or simply nanotechnology. MEMS and NEMS operate using the principles of mechanics in tiny versions of the classical simple machines (inclined plane, wheel and axle, lever, pulley and screw). Today, MEMS refers to almost any miniaturized device, regardless of whether it's based on silicon technology or traditional precision engineering.

QUICK STUDY

Why Go Small?

Just as birds can fly but elephants can't, MEMS devices can easily do things that are problematic for larger ones. For example, sensors and actuators are the most costly and least reliable parts of many human-scale machines and control systems. Large devices can't move as quickly or as precisely as microscale machines; precision in large machines is expensive and often difficult to mass-produce.

In contrast, MEMS technology allows us to create complex electromechanical systems that can move, position, regulate, pump and filter, and to manufacture them in quantity using batch fabrication techniques originally developed for the semiconductor industry. This puts the cost and reliability of such small sensors and actuators on a par with those of electronic integrated circuits, enabling superior performance at much lower cost.

How to Make MEMS

MEMS are typically made on a silicon substrate using some of the same microfabrication technologies (indeed, sometimes the same machinery) designed to produce microprocessors and other electronic integrated circuits.

The micromechanical components are fabricated using micromachining processes that selectively remove parts of the silicon wafer or add new structural layers to form a variety of mechanical and electromechanical devices.

We speak of *bulk micromachining*, where the entire thickness of the silicon wafer is used, and *surface micromachining*, in which a thin layer of silicon is etched to make mechanical structures beneath it movable.

Three basic processes are used to make MEMS: deposition, photolithography and etching. Deposition adds thin films of material onto a substrate, using electroplating, physical and chemical vapor deposition, and sputtering (in which metal atoms are knocked off a target of pure metal with ions from a plasma and then deposited on the substrate). These deposited materials can be polymers or metals such as gold, nickel, aluminum, chromium, titanium, tungsten or silver.

Photolithography is used with both deposition and etching processes to transfer the pattern or blueprint of the device onto the substrate. The substrate is first coated with a photosensitive material, after which parts are covered up with a mask. It can then be selectively exposed to a radiation source (typically light). The exposed region will have different properties than unexposed areas and can then be removed or treated.

In wet etching, material is removed selectively by dipping it into a chemical solution that can dissolve it. In dry etching, also called reactive-ion etching, the substrate is put inside a reactor vessel, several gases are introduced, and a plasma is created by a radio frequency power source. Plasma ions are accelerated toward the surface of the material, where they react to form other gases.

In addition to this chemical process is a physical process similar to sputtering, in which high-energy ions knock atoms out of the substrate without a chemical reaction taking place. Balancing chemical and physical etching rates allows different effects, including sidewalls with different profiles, from rounded to vertical.

A newer etching process uses alternate injections of two different gases, creating etch-resistant polymers on sidewalls that concentrate removal on only horizontal surfaces. This allows deep etching, which can cut completely through the silicon substrate.

Some other processes — ones not derived from semiconductor technology — are used in MEMS fabrication. These include molding and electrical discharge machining.

Applications

Although the technology is still in its infancy, MEMS devices are found in many places, including ink-jet printers, large-screen TVs, airbag deployment systems, and pressure sensors used in car tires and some blood-pressure systems. MEMS are also used in the motion-sensing controller featured in Nintendo's Wii video game system.

In telecommunications, MEMS has become nearly synonymous with the arrays of tiny tilting mirrors used for optical switching fabric.

With its need to reduce the size and weight of objects lifted into space, NASA uses MEMS for microgyroscopes, microthrusters, mass spectrometers and other devices. ▸

Kay is a Computerworld *contributing writer in Worcester, Mass. You can contact him at russkay@charter.net.*

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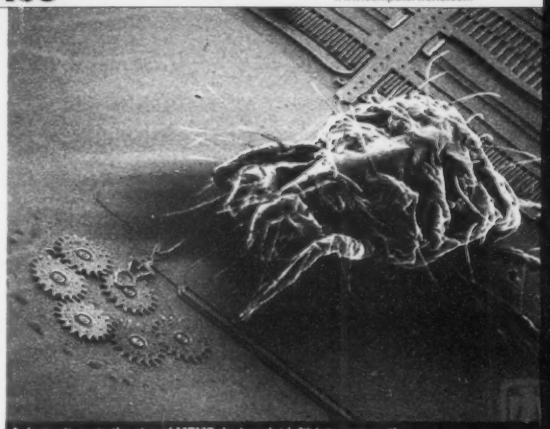
MORE ON MEMS

- A useful tutorial on MEMS: *http://home.earthlink.net/~trimmerw/mems/tutorials.html*
- A variety of photomicrographs of MEMS: *http://mems.sandia.gov/scripts/images.asp*

And books dealing with MEMS:

- *Foundations of Nanomechanics*, by Andrew N. Cleland (Springer, 2002)
- *Microsensors, MEMS and Smart Devices*, by Julian W. Gardner, Vijay Varadan and Osama O. Awadelkarim (John Wiley & Sons, 2001)
- *Microengineering, MEMS and Interfacing: A Practical Guide*, by Danny Banks (CRC, 2006)



A dust mite puts the size of MEMS devices (at left) into perspective.

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SGS

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Looking Into What We Can Look Into

When it comes to employee monitoring, a state agency's hands are often tied. Our manager seeks to change that. By C.J. Kelly

SECURITY MANAGER'S JOURNAL

I HAVE BEEN asked to investigate an employee who may be violating agency policy regarding computing resources. That sounds straightforward, but this situation has put into sharp relief the difficulty we have in a state agency when it comes to monitoring employees.

I worked for years in the private sector, where things were cut and dried. If IT security got a request from personnel to investigate an employee's in-house activities, we would do our thing and gather reams of data that we could turn over to personnel. Usually, the employee ended up being escorted from the building shortly thereafter.

We had the tools. We knew what we were doing. We had no hesitation, because we were not violating anyone's privacy and our job was to protect the company. All employees signed an acceptable-use policy when they were hired, and it was spelled out to them that they would be monitored. Everything was crystal clear.

In the public sector, it sometimes seems as if employees have more rights than is appropriate. They are so protected by state law that management often has its hands tied when confronted with misconduct. Most state agencies do not implement Web filtering or monitor employees' online behavior. Exceptions exist among agencies that protect the public, like fire and police, but most state agencies seem to assume that employees are on their best behavior. It's like "don't ask, don't tell" for bureaucrats.

So, what can a government entity do when suspicion arises that an employee is misusing network computing resources? In a way, we are put in the position of having to hope for the worst. If someone was suspected of doing something that is patently illegal, such as downloading child pornography, he would be open to criminal investigation. Law enforcement — in the form of the police, the FBI or the attorney general's office — would have to be called in.

But what about an employee who spends work time trading on eBay, chatting via instant messaging, sending and reading personal e-mail or browsing the Internet for hours at a time? What can you do, as a public-sector supervisor, when you suspect that an employee is wasting time with such activities, when the only evidence you have is that he always quickly hides a window on his monitor when you approach? If you don't have the right to deploy monitoring tools, all you've got is suspicion and no hard data to back it up. Without the proper tools, we can't preserve the chain of evidence in a security investigation.

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After laying out our dearth of options to my boss, I told him that we needed to take a close look at the policies of our own agency, of the department the agency belongs to and of the state to see how we can revise our policies to allow for insider investigations. Any revisions would have to avoid conflicts with those existing policies. Assuming we can find enough wriggle room to implement some sort of policy change that would allow us to proceed effectively when employee behavior has to be investigated, the next step would be to define the investigative process we would use. Then we would want to make sure that agency management would sign off on this new policy. Meanwhile, we could look into the technologies that are available for conducting the type of investigations that we hope to pursue.

Legal Ramifications

The technology aspect was easy enough to investigate. As a first step, I called a friend I used to work with in the private sector who handles security investigations. He explained how his current company performs investigations, and he recommended some tools, gave me copies of the forms the company uses and went over the process the company follows.

Going off in a different direction, we came across a recent court opinion (No. 05-30177) from the U.S. Court of Appeals for the Ninth Circuit. The case examined the question of whether an employee should have any expectation of privacy in using his workplace computer. This is a small excerpt from the opinion (emphasis mine):

Thus, given the nature of our constitutional inquiry, we think the California court's reasoning is compelling. Social norms suggest that employees are not entitled to privacy in the use of workplace computers, which belong to their employers and pose significant dangers in terms of diminished productivity and even employer liability. ***Thus, in the ordinary case, a workplace computer simply "do[es] not provide the setting for those intimate activities that the [Fourth] Amendment is intended to shelter from government interference or surveillance."*** *Oliver v. United States*, 466 U.S. 170, 179 (1984); see also Muick, 280 F.3d at 743 ***("[T]he abuse of access to workplace computers is so common (workers being prone to use them as media of gossip, titillation, and other entertainment and distraction) that reserving a right of inspection is so far from being unreasonable that the failure to do so might well be thought irresponsible.").*** *Employer monitoring is largely an assumed practice, and thus we think a disseminated computer-use policy is entirely sufficient to defeat any expectation that an employee might nonetheless harbor.*

Failing to monitor employee behavior "is so far from being unreasonable that the failure to do so might well be thought irresponsible"? Those words hold huge significance for us. I need to get this information into the hands of the powers that be who can effect a policy change at the state level.

Meanwhile, I am turning to Guidance Software, which produces investigative software called EnCase Enterprise. In fact, I'm giving the company a call tomorrow. ›

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "C.J. Kelly," whose name and employer have been disguised for obvious reasons. Contact her at mscjkelly@yahoo.com, or join the discussions in our security blogs: **computerworld.com/blogs/security**.

To find a complete archive of our Security Manager's Journals, go online to **computerworld.com/secjournal**.

SECURITY LOG

Federal CIOs Make Security Progress

IT security remains a top concern of U.S. government CIOs, but they feel they're making progress, according to a survey by the Information Technology Association of America. CIOs told the ITAA that they made gains in certifying IT systems, training IT workers and other employees about cybersecurity, and establishing IT security policies during 2006, said Paul Wohlleben, chairman of the ITAA's CIO survey project. Though multiple government laptops and other devices were reported missing last year, federal CIOs said they're making "incremental progress" toward meeting federal cybersecurity mandates, Wohlleben said.

Symantec Calls for U.S. Breach Law

Symantec Corp. called on Congress to pass a data breach notification bill that would require organizations to report data breaches when there's a reasonable risk of identity theft. U.S. lawmakers introduced about a dozen bills requiring notification after a series of data breaches in early 2005, but all of them stalled. Robert Clyde, Symantec's vice president of technology, said companies would prefer having one standard to follow; about 30 states have passed separate breach notification laws.

Nothing but Spam

Basingstoke, England-based Marshal Ltd.'s Threat Research and Content Engineering Team reported that about 85% of all e-mail received is spam. It said that if the current trend continues, at least 90% of e-mail will be spam by the end of this year.

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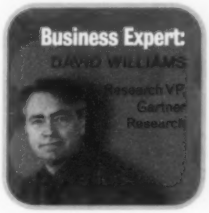

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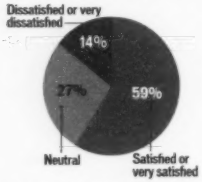

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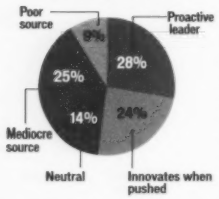

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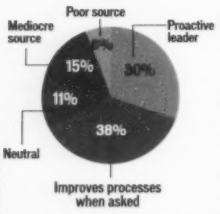

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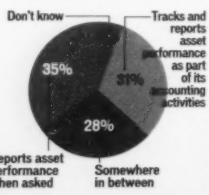

SOURCE: FORRESTER RESEARCH INC. ONLINE SURVEY OF 71 CEOS, DECEMBER 2006

PAUL GLEN

How to Cope With a Managerial Meltdown

WE'VE ALL SEEN it happen. Self-destruction. Career-limiting behavior. Professional suicide. Some previously normal and capable IT manager suddenly starts acting strangely and destructively. He figuratively sets his hair on fire and runs around the building screaming of cabals at the top of his lungs. And we all stand by, watching the slow-motion train wreck, shaking our heads and whispering yet not knowing what to do.

If you are the supervisor of such a person, you've got a challenge on your hands. What do you do with a solid performer who seems to be going down a rathole and may take others with him? What do you owe the organization, the manager and the manager's subordinates?

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The answer to these questions rests with the answers to a few more.

1. Why is this happening? Of course, every case is different, and the reasons may not be immediately apparent. But over the years, I've noticed a few causes that seem more common than others. They include these:

Personal relationship disruption: Death, divorce and breakups seem to top the list. The disruption of a family or relationship is a devastating experience. Grief, anger and confusion spill over into the workplace and can lead to behavior that's confusing, in part, because it's unrelated to the work environment.

Didn't get the job: When someone is passed over for a promotion or a desired assignment, he can react unpredictably. He may try to undermine the person who did get the job, lashing out or perhaps trying to foment a coup. He may simply try to provoke others to confirm his value and worth.

In over his head: Let's face a sad fact: Some managers have been overpromoted. They rise too high or too fast for their own good, lacking the knowledge, skills or maturity for the position they hold. Some discover that they wanted the title but not the job. Most managers who are in over their heads know it. They can panic or react unpredictably. They see no way back to where they belong and can become unhinged by the experience.

Protest: Sometimes a manager sees his strange behavior as a solemn duty or moral crusade. Rightly or wrongly, he may feel that a decision made or an approach taken is so damaging to the organization or so unethical that it requires an extraordinary response — even a self-damaging one. He may realize that he is risking his career but be willing to suffer the consequences.

Wants to be fired: Sometimes a manager feels trapped in his job. He doesn't really want the job but doesn't feel free to quit or change. He may not want to walk away from the money, give up the status or face the wrath of a disapproving family. So, consciously or not, he hopes that you will solve the problem by taking the decision out of his hands.

Mental illness: Sometimes a seeming mental breakdown is just that: a descent into madness (that you hope will be temporary). Depression and substance abuse are common. No one is completely immune to the possibility of such illness.

2. Is this person's career in this organization salvageable? You need to ask if the individual involved can be rehabilitated either as a manager or as an individual contributor. If given time and support, can he return to the mainstream?

3. Are there legal or cultural constraints on your options?

4. Does this person have unique and essential knowledge or skills?

With the answers to these questions, you can generate and evaluate options within the context of the situation. When evaluating these options, I'd suggest that you keep two priorities uppermost in your mind: to minimize damage to others (subordinates, peers, clients) and to treat the individual fairly.

The most effective responses that I've seen include these:

Dismissal: Sometimes you need to fire a person to protect the staff and the organization.

Time in the wilderness: Working alone on some noncritical project can give a person time to calm down, reflect on past behavior and prepare for reintegration into the group.

An important special assignment: Have him work on his own, but give him a project that is genuinely critical to the group.

Meltdowns happen. How you handle them not only helps those in distress but communicates your values to the rest of the organization. When you've got one on your hands, think carefully, but don't think for too long before acting.

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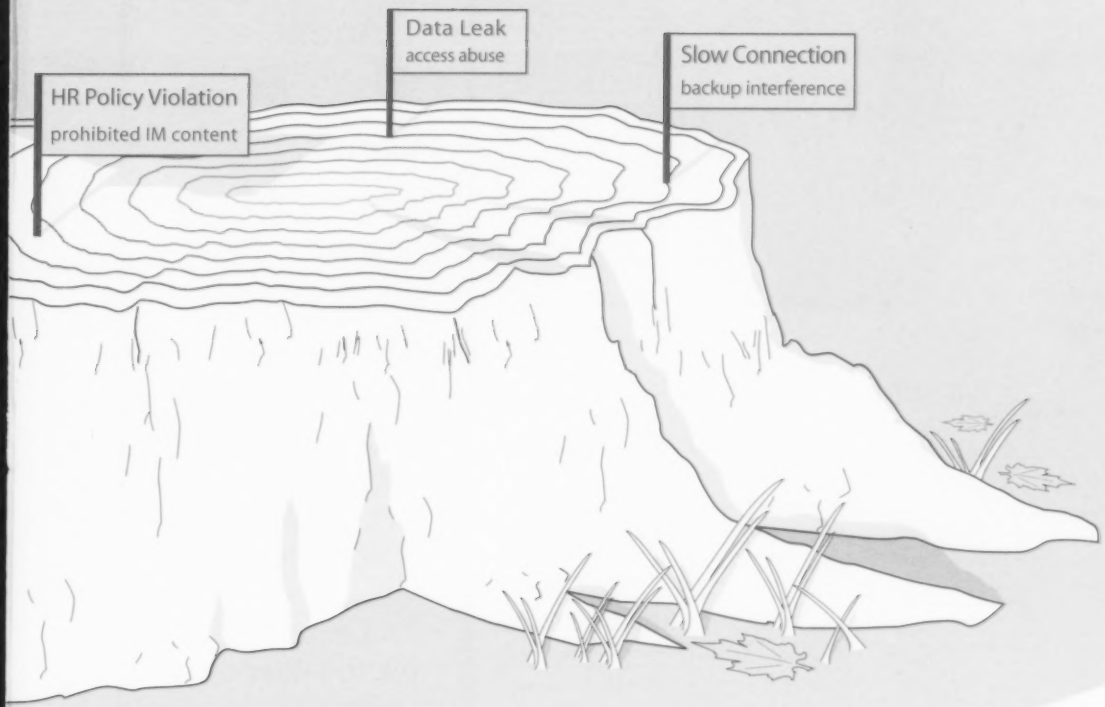

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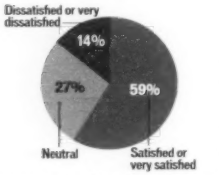

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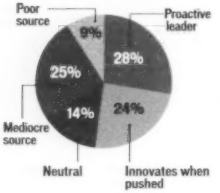

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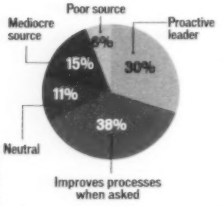

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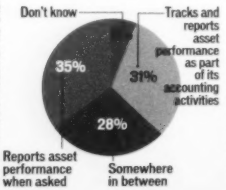

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With the answers to these questions, you can generate and evaluate options within the context of the situation. When evaluating these options, I'd suggest that you keep two priorities uppermost in your mind: to minimize damage to others (subordinates, peers, clients) and to treat the individual fairly.

The most effective responses that I've seen include these:

Dismissal: Sometimes you need to fire a person to protect the staff and the organization.

Time in the wilderness: Working alone on some noncritical project can give a person time to calm down, reflect on past behavior and prepare for reintegration into the group.

An important special assignment: Have him work on his own, but give him a project that is genuinely critical to the group.

Meltdowns happen. How you handle them not only helps those in distress but communicates your values to the rest of the organization. When you've got one on your hands, think carefully, but don't think for too long before acting.

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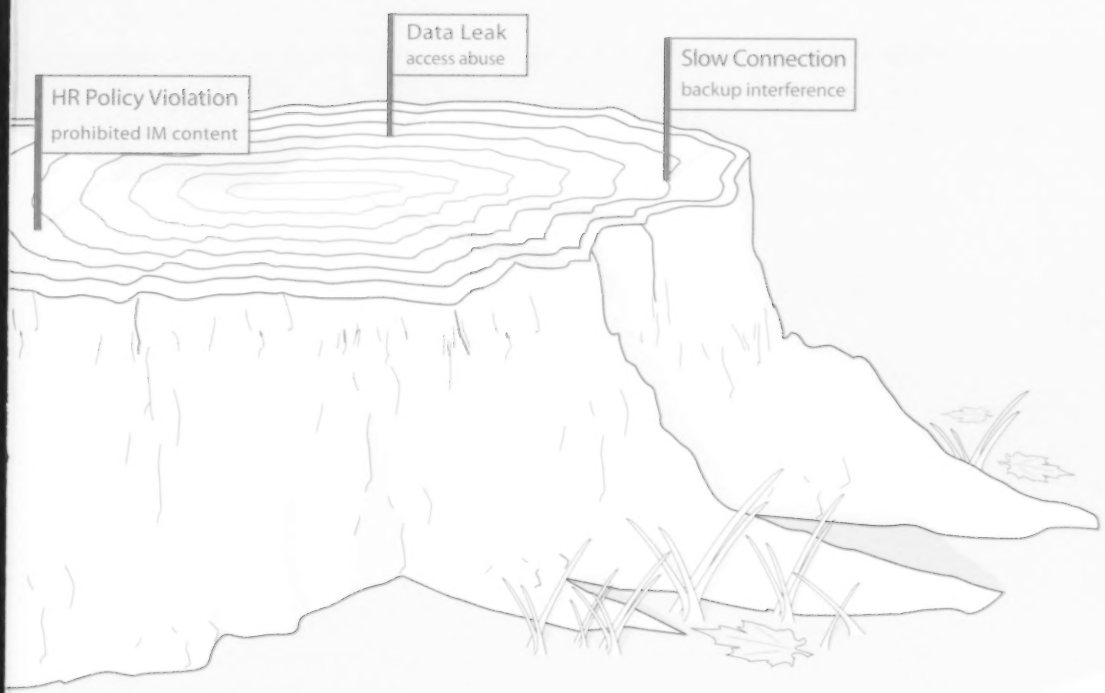

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Continued from page 1

Hyperion

single vendor, the consolidation of the industry has led to precisely that. I am very concerned that businesses will lose leverage as a result of this continued consolidation of major technology solutions."

David Dowling, Hyperion Financial Management administrator at Flint Group, an Ann Arbor, Mich.-based supplier of printing inks, plates and pigments, said he also has concerns about the deal. "As Hyperion has grown as a company, their customer service and support has declined," he said. "I think this will be a step in same direction."

In addition, Flint Group now runs Hyperion's financial management software on Microsoft Corp.'s SQL Server, and Dowling said he is concerned that Oracle will force his company to move to its database.

On the other hand, Diane Maluzhinsky, a financial specialist at General Dynamics Land Systems Inc. in Sterling Heights, Mich., applauded the move. Her company, which designs and builds land and amphibious combat systems for the military, has been using Hyperion's Essbase product for eight years, she said.

But because the organization is also a heavy user of Oracle's ERP applications, Maluzhinsky said, she has continually had to justify the use of Hyperion's online analytical processing tool over Oracle's.

"Oracle has its own OLAP product, but it didn't stand a chance against Hyperion," she said. "It didn't have the strength Hyperion had."

In addition, although General Dynamics uses Oracle's financial software to close its books, the Oracle software doesn't have a mechanism to consolidate those financial reports at a corporate level, she noted. Therefore the company has to dump all the data from Oracle into Essbase to be consolidated before sending it to the corporate office each month, she said.

"The combination of the two will make them very powerful," Maluzhinsky said.

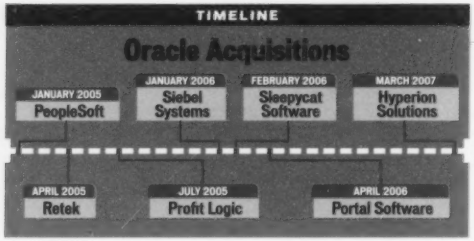
Questions Abound

Wayne Eckerson, director of research at the Data Warehousing Institute, questioned whether Hyperion's product development plans will continue apace under a new owner. "Hyperion was doing well and has some innovative products in the pipeline," he said. "Will Oracle leave Hyperion alone? I doubt it. Will Hyperion continue to innovate? I'm not sure."

However, Eckerson also said Hyperion's planning, budgeting and consolidation software fills a big gap in Oracle's business applications strategy. He said the Hyperion products will give Oracle "a huge presence in the chief financial officer's office," helping it better compete against SAP AG.

> **"What is next? While [it's] not our intention to put all of our technology investments in the hands of a single vendor, the consolidation of the industry has led to precisely that."**
>
> **BART KLEIN,** VICE PRESIDENT AND MANAGER OF APPLICATION DEVELOPMENT, UMB FINANCIAL CORP.

> **"For us, [the merger] would be a benefit, as we have a good relationship with Oracle and our primary database is [Oracle] 10g. It will hopefully allow us to leverage both products better, as I hope they will integrate the best of Oracle with Hyperion."**
>
> **MARK MONN,** DIRECTOR OF PERFORMANCE MANAGEMENT AND RESEARCH, FAMILY SERVICES OF METRO ORLANDO



Cindi Howson, author of the independent BIScorecard.com report, which evaluates BI tools, noted that Oracle took several years to leverage the Express OLAP engine it gained with the purchase of IRI Software in 1995. "I hate to think Essbase may fall to the same fate," she said.

Howson noted, however, that the move is a smart one for Oracle, considering the convergence of BI and performance management and Microsoft's entry into the market.

Mark Monn, director of performance management and research at Hyperion user Family Services of Metro Orlando, said he expects that the deal will prove positive for his organization.

"For us, it would be a benefit, as we have a good relationship with Oracle and our primary database is [Oracle] 10g," Monn said. "It will hopefully allow us to leverage both products better, as I hope they will integrate the best of Oracle with Hyperion."

Paul Hamerman, an analyst at Forrester Research Inc., said Hyperion users should fare well, because "Oracle wants to keep these customers renewing their maintenance contracts."

Oracle Targets CFOs, SAP With Hyperion Purchase

CHARLES PHILLIPS, president of Oracle, said that the company's $3.3 billion acquisition of Hyperion Solutions will add critical analytical applications to its line of business intelligence products.

"We weren't very strong in planning and budgeting," he acknowledged. "We had a small product there that had not done well."

Oracle agreed to buy the Santa Clara, Calif., maker of BI tools last week. The deal is expected to close in April.

Phillips noted that the analytical tools gained through Oracle's acquisition of Siebel Systems early last year will remain the centerpiece of Oracle's enterprise BI offering.

The Hyperion deal is the latest in a string of 28 acquisitions by Oracle since the start of 2005.

Hyperion said that about 12,000 customers use its software and that it employs about 2,500 workers spread over 20 countries. The company reported revenue of $765.2 million for the fiscal year that ended June 30, 2006.

David Mitchell, an analyst at London-based consultancy Ovum Ltd., noted that Oracle has been trying to build out its own BI business, but its strategy and product offerings have been focused primarily on customers of its own software, Mitchell said.

"Adding Hyperion to the family makes it a best-of-breed player rather than just focusing on the traditional Oracle customer base," he said.

Phillips said that adding the Hyperion financial analysis software to the Oracle product line will provide it with better access to corporate chief financial officers. Therefore, Oracle will be able to push "a lot of other applications and tools into the CFO's office – mainly compliance and governance [software] that the CFO drives," he said.

In addition, Phillips noted that because "thousands of SAP customers close their books with Hyperion products," the deal helps to further Oracle's goal of inserting its products into enterprises that may be using SAP wares, he added.

However, Mitchell said he doubts that the Oracle acquisition will make much difference to SAP, noting that companies make big investments in their ERP software and don't switch vendors lightly.

In a letter to customers, Hyperion President and CEO Godfrey Sullivan said that the deal "yields immediate benefit to both Hyperion and Oracle customers."

Oracle's acquisition "extends Hyperion's capabilities beyond the finance department with operational analytic applications and complementary BI tools from Oracle. Oracle customers will gain access to our domain expertise in financial management," Sullivan wrote.

– JAMES NICCOLAI, IDG NEWS SERVICE, AND HEATHER HAVENSTEIN

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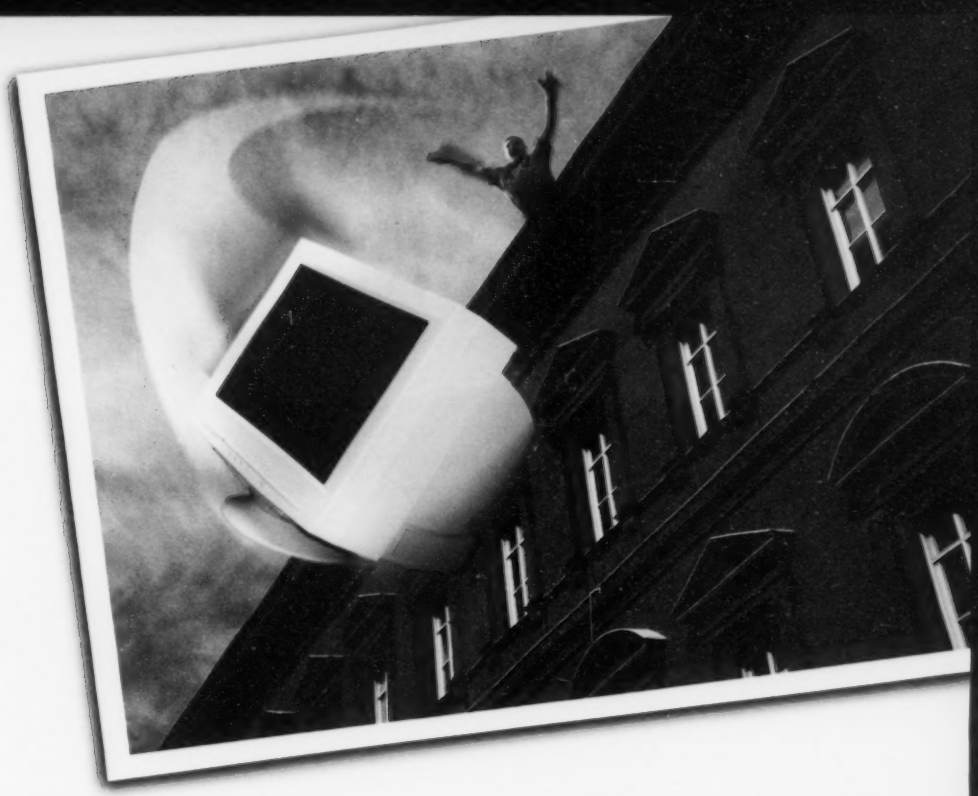

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SHARK BAIT

Cast your tech tidbits into the feeding frenzy

FRANK HAYES ■ FRANKLY SPEAKING

Time to Reinvent IT

THEY'RE AT IT AGAIN. This time it's the Society for Information Management that has launched a program to convince kids they should become IT professionals. We've seen this before — remember a decade ago, when actor Jimmy Smits was hired by the Information Technology Association of America to "make IT hip, happening and cool for the kids out there"? (No kidding, those are the words an ITAA spokesman actually used to describe the program.)

Of course, there are two nagging little problems. First, kids aren't taking computer science courses — or going anywhere near them. And second, kids know that the really cool technology isn't in corporate IT shops — or anywhere near *them*.

As *Computerworld's* Thomas Hoffman reports on page 12, SIM is now targeting high school students and guidance counselors with presentations about IT career opportunities. Let's all wish them well. But don't expect much.

After all, these kids are swimming in a sea of technology. They've never known a world without Macs and PCs, Nintendos and PlayStations. Computer games, programmable robots, texting, blogs, homemade videos and Web sites — cool technology is all around them.

They learn as much about technology as they need to accomplish what they want to do. They don't see a need for lots of classroom theory. And they don't have any use for a job that will make all this interesting stuff deadly dull.

But it's worse than that. Eventually, they *will* grow up and start thinking about careers. That's when they'll notice that the most education-intensive jobs in IT are the ones that get shipped offshore first. They'll recognize that computer science courses are full of theory that doesn't match real-world employers' needs.

They won't waste their college time and money on that. Hey, in their shoes, we wouldn't either.

That's what SIM is up against. To these kids, a pitch for a computer science education and a corporate IT career sounds like just so much snake oil.

Maybe it's time to stop selling IT snake oil and instead start reinventing corporate IT again.

Look, our IT shops aren't based on today's reality. We expect computer science diplomas from job applicants because 30 years ago there was a glut of techies in the job market, thanks to the post-Sputnik push for better science and math education. We stopped teaching literature majors how to program in Cobol (they were good at syntax and punctuation) and instead started hiring computer scientists to custom-build our big, critical applications from scratch.

FRANK HAYES, *Computerworld's* senior news columnist, has covered IT for more than 20 years. Contact him at **frank_hayes@computerworld.com.**

That world is gone. Today, there's no glut of young techies or big projects to custom-build. Today, there's a constant stream of new technology, most of it at the edge of our networks, that IT people have to master fast enough to solve a constant stream of new business problems.

We reinvented data processing to make use of that techie glut. It's time to reinvent IT to use the tech-saturated, quick-learning but theory-light labor pool we have now.

Think we can count on universities to reinvent their computer science programs? It won't happen until we force them to. They're even more hidebound than we are. First clue: How many IT shops have a motto in Latin?

No, it's up to us to reinvent our IT shops, based on what the business needs from us. That likely means understanding user needs, including quick and effective responses to user problems. And understanding business needs, including rapid delivery of business functions. And the ability to keep the infrastructure running and to continually improve the edge technology to help the business succeed.

That's what we have to hire people to deliver. Matching tech-savvy, theory-light kids to those requirements may not sound easy — and it won't be.

But it's better than simply hoping SIM will succeed at selling kids IT snake oil. ◗

Getting the Message

Big IT services organization starts a new internal mailing list for its hundreds of IT architects around the world. The results are predictable: Someone sends a reply to the whole list with an "unsubscribe" message, others follow suit and soon most of the traffic is people trying to unsubscribe and others irritated about the "unsubscribe" spam. "The whole situation is reduced to a farce when someone on the list takes the opportunity to ask the mailing list where he can buy an inexpensive Armani suit," says a pilot fish on the list. "Someone else even responded with a Web address for him to shop from. And these people are IT professionals."

SHARK TANK

Too Quick

This company has been using a spam filter on its local mail server, but at this point, the number of summary reports is getting to be as much of a problem as the spam, says a pilot fish on the scene. "Corporate headquarters mentioned they were looking at a new service but failed to mention they were turning it on over the weekend," fish says. "They broadcast an e-mail explaining the new service. You guessed it: The old product blocked the announcement, and everyone was afraid it was a phishing attack."

Too Quiet

Receptionist is having problems with the new VoIP system with unified messaging. "She said she couldn't hear her voice mails, and every time she tried to adjust the volume, the phone would ring," says a help desk pilot fish. "Turns out the volume on her computer speakers was turned down, so when she clicked to hear the voice mail, she couldn't hear it. She would then reach for the volume control on the phone and turn it up. When she did this, it would ring to indicate how loud or soft she was adjusting the volume of the ringer. She would pick up the phone, but no one would be there. Even 18 months later, when the phone rings in the lobby, *everyone* knows, because it's so loud."

Too True

This pilot fish needs to restart the company's main server, so he sends out an e-mail to everyone. "I added a 'request read receipt' to make sure that at least half the company had read my e-mail," fish reports. "One of the receipts I got back stated: 'Your message has been displayed to the user. There is no guarantee that the message was read or understood.' "

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